REPORT

# 2025 Annual Groundwater Monitoring and Corrective Action Report

**SCPD Surface Impoundment, Sioux Energy Center, St. Charles County, Missouri, USA**

**January 31, 2026**

**Project Number: 23009-25**

**Submitted to:**

Ameren Missouri
1901 Chouteau Avenue
St. Louis, Missouri 63103

**Submitted by:**

Rocksmith Geoengineering, LLC
2320 Creve Coeur Mill Rd
Maryland Heights, MO 63043

# EXECUTIVE SUMMARY AND STATUS OF THE SCPD GROUNDWATER MONITORING PROGRAM

This annual report was developed to meet the requirements of United States Environmental Protection Agency (USEPA) 40 CFR Part 257 "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule" (the CCR Rule). The CCR Rule requires owners or operators of existing CCR units to produce an Annual Groundwater Monitoring and Corrective Action Report (Annual Report) each year (§ 257.90(e)). Ameren Missouri (Ameren) has determined that the SCPD Coal Combustion Residuals (CCR) Surface Impoundment at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This Annual Report for the SCPD describes CCR Rule groundwater monitoring activities from January 1, 2025 through December 31, 2025.

The SCPD began receiving CCR waste on December 14, 2022. Throughout 2025, the SCPD CCR unit has been operating under the Detection Monitoring Program (§257.94), with the first Detection Monitoring sampling event beginning on May 2, 2023. As a part of Detection Monitoring, statistical evaluations are completed after each sampling event to determine if there are any values that represent a Statistically Significant Increase (SSI) over background concentrations. SSIs were determined during each sampling event in 2025, and a summary of the SSIs for the past year is provided in **Table 1**.

**Table 1 - Summary of 2025 SCPD Sampling Events, Previous Year Verification, and Statistical Evaluations**

| Event Name | Type of Event and Sampling Dates | Laboratory Analytical Data Receipt | Parameters Collected | Verified SSIs | SSI Determination Date | ASD Completion Date |
|---|---|---|---|---|---|---|
| November 2024 Sampling Event | Detection Monitoring, November 14-20, 2024 | December 24, 2024 | Appendix III, Major Cations and Anions | **Sulfate:** TMW-4, TMW-5 | March 24, 2025 | June 20, 2025 |
| | Verification Sampling, February 7, 2025 | February 21, 2025 | Detected Appendix III parameters (See Note 1) | | | |
| May 2025 Sampling Event | Detection Monitoring, May 7-12, 2025 | June 27, 2025 | Appendix III, Major Cations and Anions | **Chloride:** TMW-6<br>**Sulfate:** TMW-5 | September 25, 2025 | December 24, 2025 |
| | Verification Sampling, July 10, 2025 | July 25, 2025 | Detected Appendix III parameters | | | |
| October 2025 Sampling Event | Detection Monitoring, October 6-7, 2025 | November 12, 2025 | Appendix III, Major Cations and Anions | **Sulfate:** TMW-4, TMW-6 | January 31, 2026 | To be evaluated in 2026 |
| | Verification Sampling, December 3, 2025 | December 22, 2025 | Detected Appendix III parameters | | | |

Notes:
1) Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.
2) SSI – Statistically Significant Increase.
3) ASD – Alternative source demonstration.

As outlined in section 257.94(e)(2) of the CCR Rule, the owner or operator may demonstrate that a source other than the CCR unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Alternative Source Demonstrations (ASDs) were prepared for the November 2024 and May 2025 sampling events and are discussed further in this Annual Report. For the October 2025 sampling event, sulfate SSIs were verified at TMW-4 and TMW-6, with results slightly in exceedance of intrawell prediction limits. ASDs have been produced for previous sulfate SSIs within the monitoring network. An ASD for the sulfate SSIs identified during the October 2025 sampling event will be evaluated in 2026.

There were no changes made to the monitoring system in 2025 with no new wells installed or decommissioned.

# Table of Contents



## TABLES



## FIGURES



## APPENDICES

# 1.0 INSTALLATION OR DECOMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCPD. The groundwater monitoring system consists of six groundwater monitoring wells screened in the uppermost aquifer. Monitoring well locations are displayed in **Figure 1**. No new monitoring wells were installed or decommissioned in 2025 as a part of the CCR Rule monitoring program for the SCPD. For more information on the groundwater monitoring well network, details are provided in the previous Annual Groundwater Monitoring Reports for the SCPD.

# 2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the SCPD CCR unit in 2025. **Table 2** below provides a summary of the groundwater samples collected in 2025 including the number of samples, the date of sample collection, and the monitoring program for which the samples were collected.

**Table 2 – Summary of Groundwater Sampling Dates**

| Sampling Event | Groundwater Monitoring Wells | | | | | | Monitoring Program |
|---|---|---|---|---|---|---|---|
| | BMW-1S | BMW-3S | UG-2 | TMW-4 | TMW-5 | TMW-6 | |
| | Date of Sample Collection | | | | | | |
| February 2025 Verification Sampling | - | - | - | 2/7/2025 | 2/7/2025 | - | Detection |
| May 2024 Sampling Event | 5/7/2025 | 5/7/2025 | 5/8/2025 | 5/12/2025 | 5/12/2025 | 5/12/2025 | Detection |
| July 2024 Verification Sampling | - | - | - | - | 7/10/2025 | 7/10/2025 | Detection |
| October 2025 Sampling Event | 10/6/2025 | 10/6/2025 | 10/7/2025 | 10/7/2025 | 10/6/2025 | 10/7/2025 | Detection |
| December 2025 Verification Sampling | - | - | - | 12/3/2025 | 12/3/2025 | 12/3/2025 | Detection |
| Total Number of Samples Collected | 2 | 2 | 2 | 4 | 5 | 4 | NA |

Notes:
1) Detection Monitoring events tested for Appendix III Parameters.
2) Only analytes/wells that were detected above the prediction limit were tested during verification sampling.
3) "-" No sample collected.
4) NA – Not applicable.

## 2.1 Detection Monitoring Program

A Detection Monitoring groundwater sampling event was completed November 14-20, 2024. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2024 event were not completed until 2025 and are included in the report. Detections above respective prediction limits for some Appendix III analytes triggered a verification sampling event, which was completed on February 7, 2025, and verified two SSIs. **Table 3** summarizes the results and statistical analysis of the November 2024 Detection Monitoring event. Laboratory analytical data from the February 2025 verification sampling event and other sampling events conducted in 2025 is provided in **Appendix A**. Laboratory Analytical data for the November 2024 Detection Monitoring event are provided in the 2024 Annual Report for the SCPD.

As outlined in section 257.94(e)(2) of the CCR Rule, the owner or operator may demonstrate that a source other than the CCR unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. An ASD was completed for the November 2024 SSIs and is provided in **Appendix B**. This ASD demonstrates that the SSIs at monitoring wells TMW-4 and TMW-5 are not caused by the SCPD CCR unit, and therefore, the SCPD remains in Detection Monitoring.

Detection Monitoring groundwater samples were collected May 7-12, 2025, and testing was completed for all Appendix III analytes, as well as major cations and anions. Detections above respective prediction limits for some Appendix III analytes triggered a verification sampling event, which was completed July 10, 2025, and verified two SSIs. **Table 4** summarizes the results and statistical analysis of the May 2025 Detection Monitoring event. Similar to previous results, it was determined that the SSIs are not caused by the SCPD CCR unit, as demonstrated by the ASD provided in **Appendix C**.

A Detection Monitoring groundwater sampling event was completed October 6-7, 2025, and testing was completed for all Appendix III analytes, as well as major cations and anions. As outlined in the Statistical Analysis Plan, updates to the statistical limits should be completed once four to eight new sample results are available. During the statistical analysis of the October 2025 sampling event, the statistical limits used to determine an SSI were updated according to the Statistical Analysis Plan using data through the May 2025 sampling event. Verification sampling associated with this event was completed December 3, 2025, and sulfate SSIs were verified at TMW-4 and TMW-6. **Table 5** summarizes the results and statistical analysis of the October 2025 Detection Monitoring event. Historically, ASDs have been produced for sulfate SSIs within the SCPD monitoring network. An ASD for these October 2025 SSIs will be evaluated in 2026.

## 2.2 Groundwater Elevation, Flow Rate and Direction

To meet the requirements of §257.93(c), water level measurements were taken at all monitoring wells prior to the start of groundwater purging and sampling. Static water levels were measured within a 24-hour period in each monitoring well using an electronic water level indicator.

Groundwater elevations were used to generate potentiometric surface maps included in **Appendix D**. As shown on the potentiometric surface maps, groundwater flow direction within the uppermost aquifer is dynamic and influenced by seasonal changes in the water level in the adjacent Mississippi and Missouri Rivers, which affect water levels, gradients and flow directions in the alluvial aquifer. Groundwater in the alluvial aquifer will generally flow from the higher of the two rivers toward the lower elevation river. Water flows into and out of the alluvial aquifer as a result of fluctuating river water levels that produce “bank recharge” and “bank discharge” conditions. At this facility, groundwater can flow north and south toward the Mississippi and Missouri Rivers, depending on river levels.

Groundwater flow direction and hydraulic gradient at the SEC were estimated for the alluvial aquifer wells using commercially available software to evaluate manually collected water level data since 2016. Results indicate that groundwater flow direction at the SEC is variable due to fluctuating river levels but generally flows to the south. The overall net groundwater flow direction in the alluvial aquifer at the SEC was south-southeast in 2025 because of river level differences between the Missouri and Mississippi Rivers. From 2016 through 2025, horizontal gradients have ranged from 0.00006 to 0.001 feet/foot with an estimated net annual groundwater movement of approximately 10 feet per year in the prevailing downgradient direction. Based on water level data collected in 2025, net annual groundwater movement across the site during the year was approximately 8 feet to the south-

southeast. Using 2025 water level data from monitoring wells UG-2, TMW-4, TMW-5, and TMW-6, the overall net groundwater near the SCPD has been southward.

## 2.3 Sampling Issues

No notable sampling issues were encountered at the SCPD in 2025.

# 3.0 ACTIVITIES PLANNED FOR 2026

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2026. An ASD for SSIs associated with the October 2025 sampling event will be evaluated in 2026.

# Tables

# Table 3
# November 2024 Detection Monitoring Results
# SCPD Surface Impoundment
# Sioux Energy Center, St. Charles County, MO

| | | BACKGROUND | | GROUNDWATER MONITORING WELLS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYTE | UNITS | BMW-1S | BMW-3S | Prediction Limit UG-2 | UG-2 | Prediction Limit TMW-4 | TMW-4 | Prediction Limit TMW-5 | TMW-5 | Prediction Limit TMW-6 | TMW-6 |
| November 2024 Detection Monitoring Event | | | | | | | | | | | |
| DATE | NA | 11/20/2024 | 11/20/2024 | NA | 11/14/2024 | NA | 11/19/2024 | NA | 11/19/2024 | NA | 11/19/2024 |
| pH | SU | 6.57 | 6.72 | 6.29 - 7.50 | 7.08 | 6.585-7.26 | 7.07 | 6.642-7.223 | 6.91 | 6.59-7.093 | 6.63 |
| BORON, TOTAL | µg/L | 61.9 J | 57.3 J | 277.7 | 112 | 122.2 | 100 | 116.0 | 72.5 J | 131.8 | 106 |
| CALCIUM, TOTAL | µg/L | 175,000 | 113,000 | 143,772 | 90,800 | 146,033 | 116,000 | 156,060 | 99,800 | 179,541 | 133,000 |
| CHLORIDE, TOTAL | mg/L | 14.2 | 13.1 | 93.74 | 26.5 | 3.216 | 2.4 | 2.435 | 1.5 | 11.02 | 5.1 |
| FLUORIDE, TOTAL | mg/L | ND | ND | 0.34 | 0.29 | 0.48 | 0.43 | 0.6744 | 0.40 J | 0.37 | 0.30 J |
| SULFATE, TOTAL | mg/L | 37.1 | 17.1 | 93.63 | 29.4 | 44.43 | 58.1 | 46.12 | 83.9 | 51.85 | 44.5 |
| TOTAL DISSOLVED SOLIDS | mg/L | 613 | 413 | 657.3 | 409 | 571 | 484 | 600.6 | 405 | 719.8 | 556 |
| Febuary 2025 Verification Sampling Event | | | | | | | | | | | |
| DATE | NA | | | | | | 2/7/2025 | | 2/7/2025 | | |
| pH | SU | | | | | | | | | | |
| BORON, TOTAL | µg/L | | | | | | | | | | |
| CALCIUM, TOTAL | µg/L | | | | | | | | | | |
| CHLORIDE, TOTAL | mg/L | | | | | | | | | | |
| FLUORIDE, TOTAL | mg/L | | | | | | | | | | |
| SULFATE, TOTAL | mg/L | | | | | | 76.0 | | 56.2 | | |
| TOTAL DISSOLVED SOLIDS | mg/L | | | | | | | | | | |

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.
7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

Prepared By: GTM
Checked By: JDQ
Reviewed By: JSI

# Table 4
# May 2025 Detection Monitoring Results
# SCPD Surface Impoundment
# Sioux Energy Center, St. Charles County, MO

| | | BACKGROUND | | GROUNDWATER MONITORING WELLS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYTE | UNITS | BMW-1S | BMW-3S | Prediction Limit UG-2 | UG-2 | Prediction Limit TMW-4 | TMW-4 | Prediction Limit TMW-5 | TMW-5 | Prediction Limit TMW-6 | TMW-6 |
| May 2025 Detection Monitoring Event | | | | | | | | | | | |
| DATE | NA | 5/7/2025 | 5/7/2025 | NA | 5/8/2025 | NA | 5/12/2025 | NA | 5/12/2025 | NA | 5/12/2025 |
| pH | SU | 6.82 | 6.85 | 6.29 - 7.50 | 6.98 | 6.585-7.26 | 7.02 | 6.642-7.223 | 7.04 | 6.59-7.093 | 6.81 |
| BORON, TOTAL | µg/L | 56.5 J | 55.1 J | 277.7 | 137 | 122.2 | 81.4 J | 116.0 | 78.4 J | 131.8 | 88.9 J |
| CALCIUM, TOTAL | µg/L | 177,000 J | 129,000 | 143,772 | 84,900 | 146,033 | 106,000 | 156,060 | 108,000 | 179,541 | 143,000 |
| CHLORIDE, TOTAL | mg/L | 11.4 | 10.6 | 93.74 | 5.5 | 3.216 | 2.4 J | 2.435 | 1.7 | 11.02 | 19.4 J |
| FLUORIDE, TOTAL | mg/L | 0.26 | 0.30 | 0.34 | 0.30 | 0.48 | ND | 0.6744 | ND | 0.37 | ND |
| SULFATE, TOTAL | mg/L | 35.1 | 24.5 | 93.63 | 38.2 J | 44.43 | 11.2 | 46.12 | 81.8 | 51.85 | 51.5 J |
| TOTAL DISSOLVED SOLIDS | mg/L | 615 | 449 | 657.3 | 327 | 571 | 438 | 600.6 | 428 | 719.8 | 553 |
| July 2025 Verification Sampling Event | | | | | | | | | | | |
| DATE | NA | | | | | | | | 7/10/2025 | | 7/10/2025 |
| pH | SU | | | | | | | | | | |
| BORON, TOTAL | µg/L | | | | | | | | | | |
| CALCIUM, TOTAL | µg/L | | | | | | | | | | |
| CHLORIDE, TOTAL | mg/L | | | | | | | | | | 15.0 |
| FLUORIDE, TOTAL | mg/L | | | | | | | | | | |
| SULFATE, TOTAL | mg/L | | | | | | | | 89.4 | | |
| TOTAL DISSOLVED SOLIDS | mg/L | | | | | | | | | | |

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.
7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

Prepared By: GTM
Checked By: JDQ
Reviewed By: JSI

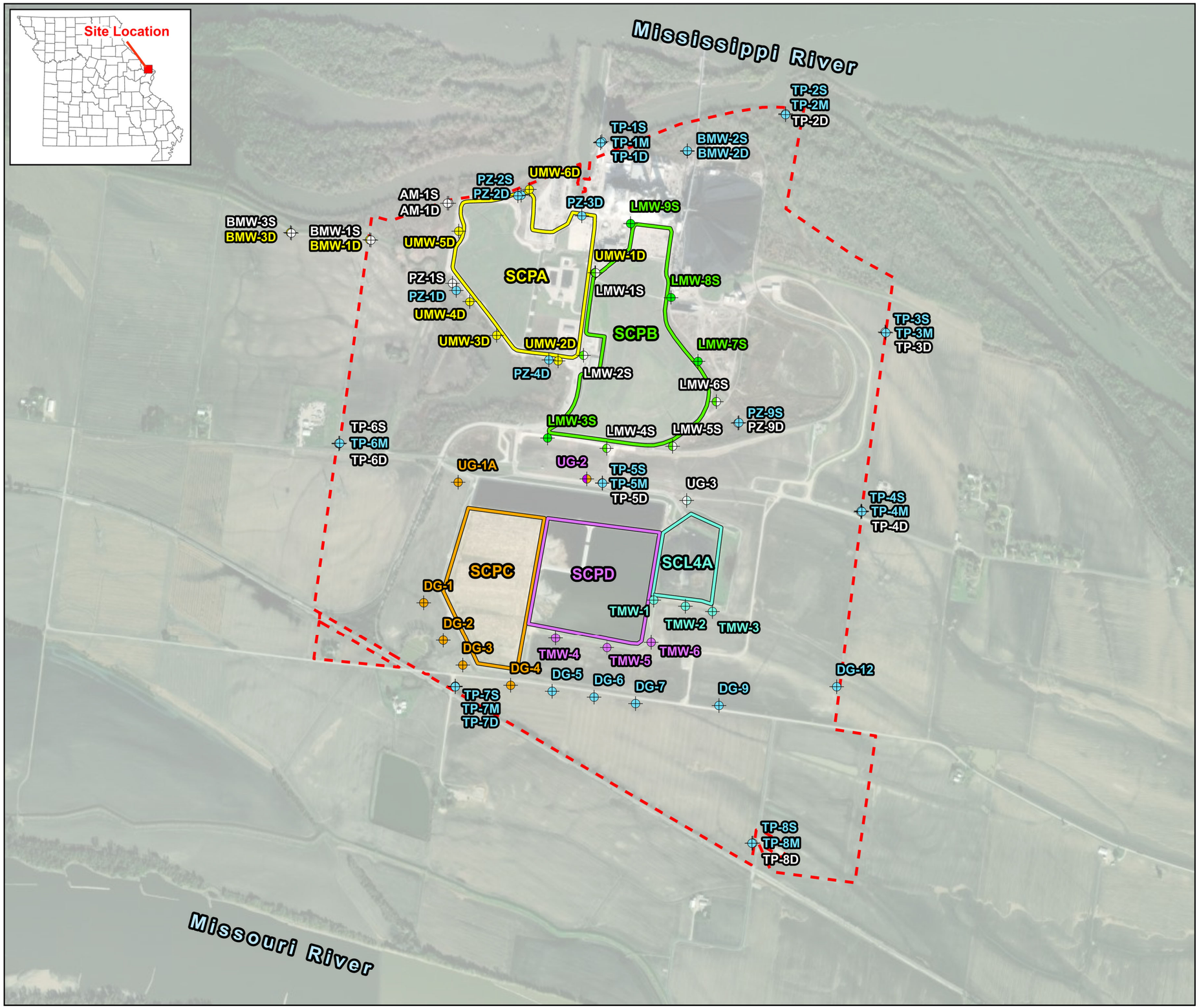
# Table 5
# October 2025 Detection Monitoring Results
# SCPD Surface Impoundment
# Sioux Energy Center, St. Charles County, MO

| | | BACKGROUND | | GROUNDWATER MONITORING WELLS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYTE | UNITS | BMW-1S | BMW-3S | Prediction Limit UG-2 | UG-2 | Prediction Limit TMW-4 | TMW-4 | Prediction Limit TMW-5 | TMW-5 | Prediction Limit TMW-6 | TMW-6 |
| October 2025 Detection Monitoring Event | | | | | | | | | | | |
| DATE | NA | 10/6/2025 | 10/6/2025 | NA | 10/7/2025 | NA | 10/7/2025 | NA | 10/6/2025 | NA | 10/7/2025 |
| pH | SU | 6.68 | 6.85 | 6.4 - 7.36 | 7.32 | 6.743 - 7.222 | 7.03 | 6.667 - 7.182 | 7.00 | 6.652 - 7.036 | 6.87 |
| BORON, TOTAL | µg/L | 68.5 J | 62.1 J | 322 | 94.8 J | 117.3 | 115 | 112.4 | 91.3 J | 129.97 | 111 |
| CALCIUM, TOTAL | µg/L | 168,000 | 129,000 | 143,314 | 102,000 | 151,519 | 131,000 | 155,643 | 164,000 | 181,883 | 139,000 |
| CHLORIDE, TOTAL | mg/L | 11.4 | 9.6 | 113 | 37.3 | 3.4115 | 1.7 | 2.3748 | 1.8 J | 33.388 | 4.3 |
| FLUORIDE, TOTAL | mg/L | 0.27 | 0.30 | 0.32745 | 0.23 | 0.48 | 0.41 | 0.49 | 0.36 | 0.37 | 0.27 |
| SULFATE, TOTAL | mg/L | 39.2 | 35.6 | 92.069 | 22.8 | 76 | 87.9 | 89.4 | 231 | 54.406 | 62.7 |
| TOTAL DISSOLVED SOLIDS | mg/L | 596 | 477 | 661.74 | 428 | 548 | 568 | 584.99 | 682 | 695.83 | 594 |
| December 2025 Verification Sampling Event | | | | | | | | | | | |
| DATE | NA | | | | | | 12/3/2025 | | 12/3/2025 | | 12/3/2025 |
| pH | SU | | | | | | | | | | |
| BORON, TOTAL | µg/L | | | | | | | | | | |
| CALCIUM, TOTAL | µg/L | | | | | | | | 141,000 J | | |
| CHLORIDE, TOTAL | mg/L | | | | | | | | | | |
| FLUORIDE, TOTAL | mg/L | | | | | | | | | | |
| SULFATE, TOTAL | mg/L | | | | | | 82.3 | | 85.8 | | 69.1 |
| TOTAL DISSOLVED SOLIDS | mg/L | | | | | | 481 J | | 529 | | |

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
7. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

Prepared By: GTM
Checked By: JDQ
Reviewed By: JSI

# Figures




TITLE

# SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

**Legend**

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)

**Utility Waste Landfill Cells**

- SCPC - FGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

**Monitoring Well Networks**

- Corrective Action Monitoring Well
- SCPA Detection and Assessment Monitoring Well
- SCPB and Corrective Action Monitoring Well
- SCPB Detection Monitoring Well
- SCPC Detection Monitoring Well
- SCPD and SCPC Detection Monitoring Well
- SCPD Detection Monitoring Well
- SCL4A and Corrective Action Monitoring Well
- SCL4A Detection Monitoring Well
- Monitoring Well Used for Water Level Elevation Measurements Only

**NOTES**

1. All boundaries and locations are approximate.
2. FGD - Flue Gas Desulfurization.
3. CCR - Coal Combustion Residuals.

**REFERENCES**

1. St Charles County, Missouri Geo-Data & Mapping Hub, Parcel Dataset, Updated April 2025.

0 500 1,000 2,000 3,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | JSI | YYYY-MM-DD | 2025-12-04 |
| PREPARED | JSI | PROJECT No. | 23009-25 |
| REVIEW | GTM | | |
| APPROVED | MNH | | |

**FIGURE 1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: C:\Users\GrantMoney\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings_Figures\4.3-SEC\4.3.2 - Production\Other Maps\Figure 1- SEC Well Locations.aprx

# Appendix A
## Laboratory Analytical Data

**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

February 21, 2025

Mark Haddock
Rocksmith Geoengineering, LLC.
2320 Creve Coeur Mill Road
Maryland Heights, MO 63043

RE: Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on February 08, 2025. 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 - Kansas City

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren



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## CERTIFICATIONS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

**Pace Analytical Services Kansas**
9608 Loiret Boulevard, Lenexa, KS 66219
Arkansas Certification #: 88-00679
Illinois Certification #: 2000302023-6
Colorado Division of Oil and Public Safety
Iowa Certification #: 118
Kansas Field Laboratory Certification #: E-92587
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Missouri Inorganic Drinking Water Certification
Nevada Certification #: KS000212024-1
Oklahoma Certification #: 2023-073
Texas Certification #: T104704407-23-17
Utah Certification #: KS000212022-13

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60469217001** | **S-TMW-4** | Water | 02/07/25 10:29 | 02/08/25 05:44 |
| **60469217002** | **S-TMW-5** | Water | 02/07/25 09:17 | 02/08/25 05:44 |
| **60469217003** | **S-SCPD-DUP-1** | Water | 02/07/25 08:00 | 02/08/25 05:44 |
| **60469217004** | **S-SCPD-FB-1** | Water | 02/07/25 09:03 | 02/08/25 05:44 |



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## SAMPLE ANALYTE COUNT

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **60469217001** | **S-TMW-4** | EPA 300.0 | AAA | 1 | PASI-K |
| **60469217002** | **S-TMW-5** | EPA 300.0 | AAA | 1 | PASI-K |
| **60469217003** | **S-SCPD-DUP-1** | EPA 300.0 | AAA | 1 | PASI-K |
| **60469217004** | **S-SCPD-FB-1** | EPA 300.0 | AAA | 1 | PASI-K |

PASI-K = Pace Analytical Services - Kansas City



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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

**Sample: S-TMW-4** **Lab ID: 60469217001** Collected: 02/07/25 10:29 Received: 02/08/25 05:44 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **76.0** | mg/L | 10.0 | 5.5 | 10 | | 02/14/25 12:28 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

**Sample: S-TMW-5** **Lab ID: 60469217002** Collected: 02/07/25 09:17 Received: 02/08/25 05:44 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **56.2** | mg/L | 10.0 | 5.5 | 10 | | 02/13/25 18:57 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

**Sample: S-SCPD-DUP-1** **Lab ID: 60469217003** Collected: 02/07/25 08:00 Received: 02/08/25 05:44 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **57.0** | mg/L | 10.0 | 5.5 | 10 | | 02/13/25 19:12 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

**Sample: S-SCPD-FB-1** **Lab ID: 60469217004** Collected: 02/07/25 09:03 Received: 02/08/25 05:44 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **<0.55** | mg/L | 1.0 | 0.55 | 1 | | 02/13/25 19:26 | 14808-79-8 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

QC Batch: 924822
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60469217002, 60469217003, 60469217004

METHOD BLANK: 3662520 Matrix: Water
Associated Lab Samples: 60469217002, 60469217003, 60469217004

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 02/13/25 04:37 | |

LABORATORY CONTROL SAMPLE: 3662521

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 5 | 5.1 | 102 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3662522 3662523

| Parameter | Units | 60469213004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 77.7 | 50 | 50 | 133 | 150 | 110 | 144 | 80-120 | 12 | 15 | M1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3662525 3662526

| Parameter | Units | 60469215002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 75.7 | 25 | 25 | 99.1 | 97.9 | 94 | 89 | 80-120 | 1 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3662528 3662529

| Parameter | Units | 60469216001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 78.9 | 5 | 5 | 79.5 | 83.9 | 14 | 101 | 80-120 | 5 | 15 | E,M1 |

SAMPLE DUPLICATE: 3662524

| Parameter | Units | 60469213004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 77.7 | 73.5 | 5 | 15 | |

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

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## QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

SAMPLE DUPLICATE: 3662527

| Parameter | Units | 60469215002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 75.7 | 74.1 | 2 | 15 | |

SAMPLE DUPLICATE: 3662530

| Parameter | Units | 60469216001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 78.9 | 78.8 | 0 | 15 | E |

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

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

QC Batch: 924958
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60469217001

METHOD BLANK: 3663200 Matrix: Water
Associated Lab Samples: 60469217001

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 02/14/25 11:29 | |

LABORATORY CONTROL SAMPLE: 3663201

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 5 | 4.9 | 98 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3663202 3663203

| Parameter | Units | 60469217001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 76.0 | 50 | 50 | 126 | 122 | 101 | 93 | 80-120 | 3 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3663205 3663206

| Parameter | Units | 60469218001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 998 | 5 | 5 | 968 | 967 | -602 | -615 | 80-120 | 0 | 15 | E,M1 |

SAMPLE DUPLICATE: 3663204

| Parameter | Units | 60469217001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 76.0 | 74.6 | 2 | 15 | |

SAMPLE DUPLICATE: 3663207

| Parameter | Units | 60469218001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 998 | 993 | 0 | 15 | E |

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

## REPORT OF LABORATORY ANALYSIS

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# QUALIFIERS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

## DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60469217

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60469217001** | **S-TMW-4** | EPA 300.0 | 924958 | | |
| **60469217002** | **S-TMW-5** | EPA 300.0 | 924822 | | |
| **60469217003** | **S-SCPD-DUP-1** | EPA 300.0 | 924822 | | |
| **60469217004** | **S-SCPD-FB-1** | EPA 300.0 | 924822 | | |



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| Pace ANALYTICAL SERVICES | DC#_Title: ENV-FRM-LENE-0009_Sam | WO# : 60469217 |
|---|---|---|
| | Revision: 2 | Effective Date: 01/12/ |

Client Name: Rocksmith Geoengineering, LLC

**Courier:** FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Xroads ☐ Client ☐ Other ☐

**Tracking #:** _____ Pace Shipping Label Used? Yes ☑ No ☐

**Custody Seal on Cooler/Box Present:** Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

**Packing Material:** Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ZPLC

**Thermometer Used:** T301 **Type of Ice:** (Wet) Blue None

**Cooler Temperature (°C):** **As-read** 1.9 **Corr. Factor** +0.1 **Corrected** 2.0

Temperature should be above freezing to 6°C 1.7, 1.1 1.8, 1.2

**Date and initials of person examining contents:** JA 2/8/25

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | |
| Sufficient volume: | ☑Yes ☐No ☐N/A | |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | |
| Containers intact: | ☑Yes ☐No ☐N/A | |
| Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? | ☐Yes ☐No ☑N/A | |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | |
| Sample labels match COC: Date / time / ID / analyses | ☑Yes ☐No ☐N/A | |
| Samples contain multiple phases? Matrix: WT | ☐Yes ☑No ☐N/A | |
| Containers requiring pH preservation in compliance? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** | ☐Yes ☐No ☑N/A | List sample IDs, volumes, lot #'s of preservative and the date/time added. |
| Cyanide water sample checks: | | |
| Lead acetate strip turns dark? (Record only) | ☐Yes ☐No | |
| Potassium iodide test strip turns blue/purple? (Preserve) | ☐Yes ☐No | |
| Trip Blank present: | ☐Yes ☐No ☑N/A | |
| Headspace in VOA vials ( >6mm): | ☐Yes ☐No ☑N/A | |
| Samples from USDA Regulated Area: State: | ☐Yes ☐No ☑N/A | |
| Additional labels attached to 5035A / TX1005 vials in the field? | ☐Yes ☐No ☑N/A | |

**Client Notification/ Resolution:** Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

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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:

| | |
|---|---|
| Company: | Rocksmith Gecengineering, LLC |
| Address: | 5233 Roanoke Drive |
| | St. Charles, MO 63304 |
| Email To: | mark.haddock@rocksmithgeo.com |
| Phone: 314-974-5678 | Fax: |
| Requested Due Date/TAT: | Standard |

**Section B** Required Project Information:

| | |
|---|---|
| Report To: | Mark Haddock |
| Copy To: | Jeffery Ingram, Grant Morey |
| Purchase Order No.: | COC #3 |
| Project Name: | Ameren SCPD - Verification Sampling |
| Project Number: | COC#3 |

**Section C** Invoice Information:

| | |
|---|---|
| Attention: | |
| Company Name: | Rocksmith |
| Address: | |
| Pace Quote Reference: | |
| Pace Project Manager: | Jamie Church |
| Pace Profile #: | 15856, line 1 |

**REGULATORY AGENCY**

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

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

**Section D** Required Client Information

Valid Matrix Codes

| MATRIX | CODE |
|---|---|
| DRINKING WATER | DW |
| WATER | WT |
| WASTE WATER | WW |
| PRODUCT | P |
| SOIL/SOLID | SL |
| OIL | OL |
| | WP |
| | AR |
| | OT |
| | TS |

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

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COLLECTED COMPOSITE START TIME | COLLECTED COMPOSITE END/GRAB DATE | COLLECTED COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Sulfate | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S-TMW-4 | WT | G | | | 2-7-25 | 1029 | | 1 | 1 | | | | | | | | | X | | |
| 2 | S-TMW-5 | WT | G | | | 2-7-25 | 0917 | | 1 | 1 | | | | | | | | | X | | |
| 3 | S-SCPD-DUP-1 | WT | G | | | 2-7-25 | — | | 1 | 1 | | | | | | | | | X | | |
| 4 | S-SCPD-FB-1 | WT | G | | | 2-7-25 | 0903 | | 1 | 1 | | | | | | | | | X | | |
| 5 | S-SCPD-MS-1 | WT | G | | | 2-7-25 | 1029 | | 1 | 1 | | | | | | | | | X | | Collected @ S-TMW-4 |
| 6 | S-SCPD-MSD-1 | WT | G | | | 2-7-25 | 1029 | | 1 | 1 | | | | | | | | | X | | |
| 7 | | WT | G | | | | | | | | | | | | | | | | | | |
| 8 | | WT | G | | | | | | | | | | | | | | | | | | |
| 9 | | WT | G | | | | | | | | | | | | | | | | | | |
| 10 | | WT | G | | | | | | | | | | | | | | | | | | |
| 11 | | WT | G | | | | | | | | | | | | | | | | | | |
| 12 | | WT | G | | | | | | | | | | | | | | | | | | |

6246921T

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Rocksmith | 2/7/25 | 1350 | | 2-8 | 0544 | 2.0 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Rasmussen

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 02/07/25

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

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

# Memorandum

**February 26, 2025**

| | | | |
|---|---|---|---|
| **To:** | Project File<br>Rocksmith Geoengineering, LLC | **Project Number:** | 23009-24 |
| **CC:** | Mark Haddock, Jeffrey Ingram | | |
| **From:** | Grant Morey | **Email:** | grant.morey@rocksmithgeo.com |
| **RE:** | **Data Validation Summary, Sioux Energy Center – SCPD Verification – Data Package 60469217** | | |

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- None.

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPD Verification
Project Number: 23009-24
Reviewer: G. Morey
Validation Date: 2/26/2025

Laboratory: Pace Analytical
SDG #: 6049217
Analytical Method (type and no.): EPA 300.0 (Sulfate)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-TMW-4, S-TMW-5, S-SCPD-DUP-1, S-SCPD-FB-1

**NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).**

| Field Information | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Sampling dates noted? | x | | | 2/7/2025 |
| b) Sampling team indicated? | x | | | GTM/JTR |
| c) Sample location noted? | x | | | |
| d) Sample depth indicated (Soils)? | | | x | |
| e) Sample type indicated (grab/composite)? | x | | | Grab |
| f) Field QC noted? | x | | | See Notes |
| g) Field parameters collected (note types)? | x | | | pH, Spec Cond, Turb, Temp, DO, ORP |
| h) Field Calibration within control limits? | x | | | |
| i) Notations of unacceptable field conditions/performances from field logs or field notes? | | x | | |
| j) Does the laboratory narrative indicate deficiencies? | | | x | No lab narrative. |

Note Deficiencies: _____

| Chain-of-Custody (COC) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was the COC properly completed? | x | | | |
| b) Was the COC signed by both field and laboratory personnel? | x | | | |
| c) Were samples received in good condition? | x | | | |

| General (reference QAPP or Method) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were hold times met for sample pretreatment? | x | | | |
| b) Were hold times met for sample analysis? | x | | | |
| c) Were the correct preservatives used? | x | | | |
| d) Was the correct method used? | x | | | |
| e) Were appropriate reporting limits achieved? | x | | | |
| f) Were any sample dilutions noted? | x | | | See Notes |
| g) Were any matrix problems noted? | | x | | |

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

| Blanks | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were analytes detected in the method blank(s)? | ☐ | ☒ | ☐ | |
| b) Were analytes detected in the field blank(s)? | ☐ | ☒ | ☐ | See Notes |
| c) Were analytes detected in the equipment blank(s)? | ☐ | ☐ | ☒ | |
| d) Were analytes detected in the trip blank(s)? | ☐ | ☐ | ☒ | |

| Laboratory Control Sample (LCS) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a LCS analyzed once per SDG? | ☒ | ☐ | ☐ | |
| b) Were the proper analytes included in the LCS? | ☒ | ☐ | ☐ | |
| c) Was the LCS accuracy criteria met? | ☒ | ☐ | ☐ | |

| Duplicates | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were field duplicates collected (note original and duplicate sample names)? | ☒ | ☐ | ☐ | S-SCPD-DUP-1 collected @ S-TMW-5 |
| b) Were field dup. precision criteria met (note RPD)? | ☒ | ☐ | ☐ | See Notes |
| c) Were lab duplicates analyzed (note original and duplicate samples)? | ☒ | ☐ | ☐ | See Notes |
| d) Were lab dup. precision criteria met (note RPD)? | ☒ | ☐ | ☐ | See Notes |

| Blind Standards | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a blind standard used (indicate name, analytes included and concentrations)? | ☐ | ☐ | ☒ | |
| b) Was the %D within control limits? | ☐ | ☐ | ☒ | |

| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was MS accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| b) Was MSD accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| c) Were MS/MSD precision criteria met? | ☒ | ☐ | ☐ | See Notes |

**Comments/Notes:**

General:

Sulfate diluted in several samples, no qualification necessary.

Field blank:

S-SCPD-FB-1 @ S-TMW-5: No analytes detected in field blank, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Comments/Notes:**

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: All field DUP RPDs within control limits (20%), no qualification necessary.

Lab duplicate max RPD: 15%: sulfate. Lab duplicate RPDs within control limits.

MS/MSD:

3662522/3662523: MSD recovery high for sulfate, MS recovery and RPD within control limits, no qualification necessary.

3662528/3662529: MS recovery low, MSD recovery and RPD within control limits, no qualification necessary.

3663205/3663206: MS/MSD recoveries low, RPD within control limits. Associated with unrelated sample, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Data Qualification:**

| Sample Name | Constituent(s) | Result | Qualifier | Reason |
|---|---|---|---|---|
| | | | | |
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Signature: Grant Morey Date: 2/26/2025

**Pace Analytical Services, LLC**
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Lenexa, KS 66219
(913)599-5665

June 30, 2025

Mark Haddock
Rocksmith Geoengineering, LLC.
2320 Creve Coeur Mill Road
Maryland Heights, MO 63043

RE: Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between May 09, 2025 and May 14, 2025. 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 - Kansas City

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren



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## CERTIFICATIONS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Pace Analytical Services Kansas**
9608 Loiret Boulevard, Lenexa, KS 66219
Arkansas Certification #: 88-00679
Illinois Certification #: 2000302023-6
Colorado Division of Oil and Public Safety
Iowa Certification #: 118
Kansas Field Laboratory Certification #: E-92587
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Missouri Inorganic Drinking Water Certification
Nevada Certification #: KS000212024-1
Oklahoma Certification #: 2023-073
Texas Certification #: T104704407-23-17
Utah Certification #: KS000212022-13



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## SAMPLE SUMMARY

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60475118001** | **S-TMW-4** | Water | 05/12/25 11:07 | 05/14/25 06:45 |
| **60475118002** | **S-TMW-5** | Water | 05/12/25 10:11 | 05/14/25 06:45 |
| **60475118003** | **S-TMW-6** | Water | 05/12/25 09:13 | 05/14/25 06:45 |
| **60475118004** | **S-SCPD-DUP-1** | Water | 05/12/25 00:00 | 05/14/25 06:45 |
| **60475118005** | **S-SCPD-FB-1** | Water | 05/12/25 11:25 | 05/14/25 06:45 |
| **60474941008** | **S-UG-2** | Water | 05/08/25 13:10 | 05/10/25 06:51 |
| **60474805001** | **S-BMW-1S** | Water | 05/07/25 15:05 | 05/09/25 02:07 |
| **60474805002** | **S-BMW-3S** | Water | 05/07/25 14:10 | 05/09/25 02:07 |



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## SAMPLE ANALYTE COUNT

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **60475118001** | **S-TMW-4** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | BMT | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60475118002** | **S-TMW-5** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | BMT | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60475118003** | **S-TMW-6** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | BMT | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60475118004** | **S-SCPD-DUP-1** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | BMT | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60475118005** | **S-SCPD-FB-1** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | BMT | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60474941008** | **S-UG-2** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60474805001** | **S-BMW-1S** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |
| **60474805002** | **S-BMW-3S** | EPA 200.7 | ARMN | 7 | PASI-K |
| | | SM 2320B | EFM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| | | EPA 300.0 | MLD | 3 | PASI-K |

PASI-K = Pace Analytical Services - Kansas City

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-TMW-4** **Lab ID: 60475118001** Collected: 05/12/25 11:07 Received: 05/14/25 06:45 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **81.4J** | ug/L | 100 | 6.4 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7440-42-8 | |
| Calcium | **106000** | ug/L | 200 | 26.9 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7440-70-2 | |
| Iron | **19.2J** | ug/L | 50.0 | 9.1 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7439-89-6 | |
| Magnesium | **24400** | ug/L | 50.0 | 20.1 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7439-95-4 | |
| Manganese | **140** | ug/L | 5.0 | 0.39 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7439-96-5 | |
| Potassium | **5130** | ug/L | 500 | 69.7 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7440-09-7 | |
| Sodium | **4110** | ug/L | 500 | 115 | 1 | 05/19/25 14:28 | 05/30/25 17:07 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **297** | mg/L | 20.0 | 10.5 | 1 | | 05/20/25 17:37 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **438** | mg/L | 10.0 | 10.0 | 1 | | 05/19/25 15:04 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **2.4** | mg/L | 1.0 | 0.53 | 1 | | 06/06/25 16:32 | 16887-00-6 | |
| Fluoride | **<0.12** | mg/L | 0.20 | 0.12 | 1 | | 06/06/25 16:32 | 16984-48-8 | |
| Sulfate | **11.2** | mg/L | 10.0 | 5.5 | 10 | | 06/06/25 16:45 | 14808-79-8 | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-TMW-5** **Lab ID: 60475118002** Collected: 05/12/25 10:11 Received: 05/14/25 06:45 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **78.4J** | ug/L | 100 | 6.4 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7440-42-8 | |
| Calcium | **108000** | ug/L | 200 | 26.9 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7440-70-2 | |
| Iron | **18.4J** | ug/L | 50.0 | 9.1 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7439-89-6 | |
| Magnesium | **19800** | ug/L | 50.0 | 20.1 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7439-95-4 | |
| Manganese | **311** | ug/L | 5.0 | 0.39 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7439-96-5 | |
| Potassium | **5030** | ug/L | 500 | 69.7 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7440-09-7 | |
| Sodium | **3730** | ug/L | 500 | 115 | 1 | 05/19/25 14:28 | 05/30/25 17:09 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **295** | mg/L | 20.0 | 10.5 | 1 | | 05/20/25 17:43 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **428** | mg/L | 10.0 | 10.0 | 1 | | 05/19/25 15:04 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **1.7** | mg/L | 1.0 | 0.53 | 1 | | 06/06/25 16:58 | 16887-00-6 | |
| Fluoride | **<0.12** | mg/L | 0.20 | 0.12 | 1 | | 06/06/25 16:58 | 16984-48-8 | |
| Sulfate | **81.8** | mg/L | 10.0 | 5.5 | 10 | | 06/06/25 17:11 | 14808-79-8 | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-TMW-6** **Lab ID: 60475118003** Collected: 05/12/25 09:13 Received: 05/14/25 06:45 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **88.9J** | ug/L | 100 | 6.4 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7440-42-8 | |
| Calcium | **143000** | ug/L | 200 | 26.9 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7440-70-2 | |
| Iron | **<9.1** | ug/L | 50.0 | 9.1 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7439-89-6 | |
| Magnesium | **27700** | ug/L | 50.0 | 20.1 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7439-95-4 | |
| Manganese | **118** | ug/L | 5.0 | 0.39 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7439-96-5 | |
| Potassium | **8110** | ug/L | 500 | 69.7 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7440-09-7 | |
| Sodium | **5510** | ug/L | 500 | 115 | 1 | 05/19/25 14:28 | 05/30/25 17:11 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **424** | mg/L | 20.0 | 10.5 | 1 | | 05/20/25 17:50 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **553** | mg/L | 10.0 | 10.0 | 1 | | 05/19/25 15:04 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **19.4** | mg/L | 1.0 | 0.53 | 1 | | 06/06/25 17:24 | 16887-00-6 | M1 |
| Fluoride | **<0.12** | mg/L | 0.20 | 0.12 | 1 | | 06/06/25 17:24 | 16984-48-8 | M1 |
| Sulfate | **51.5** | mg/L | 10.0 | 5.5 | 10 | | 06/06/25 18:43 | 14808-79-8 | D6 |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-SCPD-DUP-1** **Lab ID: 60475118004** Collected: 05/12/25 00:00 Received: 05/14/25 06:45 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **75.6J** | ug/L | 100 | 6.4 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7440-42-8 | |
| Calcium | **106000** | ug/L | 200 | 26.9 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7440-70-2 | |
| Iron | **17.3J** | ug/L | 50.0 | 9.1 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7439-89-6 | |
| Magnesium | **19600** | ug/L | 50.0 | 20.1 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7439-95-4 | |
| Manganese | **337** | ug/L | 5.0 | 0.39 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7439-96-5 | |
| Potassium | **4880** | ug/L | 500 | 69.7 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7440-09-7 | |
| Sodium | **3650** | ug/L | 500 | 115 | 1 | 05/19/25 14:28 | 05/30/25 17:16 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **283** | mg/L | 20.0 | 10.5 | 1 | | 05/20/25 18:02 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **423** | mg/L | 10.0 | 10.0 | 1 | | 05/19/25 15:05 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **1.7** | mg/L | 1.0 | 0.53 | 1 | | 06/06/25 19:35 | 16887-00-6 | |
| Fluoride | **<0.12** | mg/L | 0.20 | 0.12 | 1 | | 06/06/25 19:35 | 16984-48-8 | |
| Sulfate | **83.2** | mg/L | 10.0 | 5.5 | 10 | | 06/06/25 19:48 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-SCPD-FB-1** **Lab ID: 60475118005** Collected: 05/12/25 11:25 Received: 05/14/25 06:45 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **<6.4** | ug/L | 100 | 6.4 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7440-42-8 | |
| Calcium | **<26.9** | ug/L | 200 | 26.9 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7440-70-2 | |
| Iron | **<9.1** | ug/L | 50.0 | 9.1 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7439-89-6 | |
| Magnesium | **<20.1** | ug/L | 50.0 | 20.1 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7439-95-4 | |
| Manganese | **<0.39** | ug/L | 5.0 | 0.39 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7439-96-5 | |
| Potassium | **<69.7** | ug/L | 500 | 69.7 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7440-09-7 | |
| Sodium | **<115** | ug/L | 500 | 115 | 1 | 05/19/25 14:28 | 05/30/25 17:18 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **<10.5** | mg/L | 20.0 | 10.5 | 1 | | 05/20/25 18:05 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **<5.0** | mg/L | 5.0 | 5.0 | 1 | | 05/19/25 15:05 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **0.54J** | mg/L | 1.0 | 0.53 | 1 | | 06/06/25 20:01 | 16887-00-6 | |
| Fluoride | **<0.12** | mg/L | 0.20 | 0.12 | 1 | | 06/06/25 20:01 | 16984-48-8 | |
| Sulfate | **<0.55** | mg/L | 1.0 | 0.55 | 1 | | 06/06/25 20:01 | 14808-79-8 | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-UG-2** **Lab ID: 60474941008** Collected: 05/08/25 13:10 Received: 05/10/25 06:51 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **137** | ug/L | 100 | 6.4 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7440-42-8 | |
| Calcium | **84900** | ug/L | 200 | 26.9 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7440-70-2 | |
| Iron | **<9.1** | ug/L | 50.0 | 9.1 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7439-89-6 | |
| Magnesium | **18600** | ug/L | 50.0 | 20.1 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7439-95-4 | |
| Manganese | **10.2** | ug/L | 5.0 | 0.39 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7439-96-5 | |
| Potassium | **3810** | ug/L | 500 | 69.7 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7440-09-7 | |
| Sodium | **7610** | ug/L | 500 | 115 | 1 | 05/16/25 11:44 | 05/23/25 16:35 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **289** | mg/L | 20.0 | 10.5 | 1 | | 05/17/25 00:01 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **327** | mg/L | 10.0 | 10.0 | 1 | | 05/14/25 16:08 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **5.5** | mg/L | 1.0 | 0.53 | 1 | | 06/05/25 21:18 | 16887-00-6 | |
| Fluoride | **0.30** | mg/L | 0.20 | 0.12 | 1 | | 06/05/25 21:18 | 16984-48-8 | |
| Sulfate | **38.2** | mg/L | 5.0 | 2.8 | 5 | | 06/11/25 05:17 | 14808-79-8 | H1 |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-BMW-1S** **Lab ID: 60474805001** Collected: 05/07/25 15:05 Received: 05/09/25 02:07 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **56.5J** | ug/L | 100 | 6.4 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7440-42-8 | |
| Calcium | **177000** | ug/L | 200 | 26.9 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7440-70-2 | M1,P6 |
| Iron | **38.1J** | ug/L | 50.0 | 9.1 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7439-89-6 | |
| Magnesium | **35100** | ug/L | 50.0 | 20.1 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7439-95-4 | |
| Manganese | **749** | ug/L | 5.0 | 0.39 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7439-96-5 | |
| Potassium | **479J** | ug/L | 500 | 69.7 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7440-09-7 | |
| Sodium | **5540** | ug/L | 500 | 115 | 1 | 05/21/25 10:30 | 06/03/25 17:57 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **555** | mg/L | 20.0 | 10.5 | 1 | | 05/16/25 16:37 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **615** | mg/L | 13.3 | 13.3 | 1 | | 05/13/25 15:27 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **11.4** | mg/L | 1.0 | 0.53 | 1 | | 06/02/25 23:31 | 16887-00-6 | |
| Fluoride | **0.26** | mg/L | 0.20 | 0.12 | 1 | | 06/02/25 23:31 | 16984-48-8 | |
| Sulfate | **35.1** | mg/L | 10.0 | 5.5 | 10 | | 06/02/25 23:43 | 14808-79-8 | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

**Sample: S-BMW-3S** **Lab ID: 60474805002** Collected: 05/07/25 14:10 Received: 05/09/25 02:07 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **55.1J** | ug/L | 100 | 6.4 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7440-42-8 | |
| Calcium | **129000** | ug/L | 200 | 26.9 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7440-70-2 | |
| Iron | **<9.1** | ug/L | 50.0 | 9.1 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7439-89-6 | |
| Magnesium | **22700** | ug/L | 50.0 | 20.1 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7439-95-4 | |
| Manganese | **249** | ug/L | 5.0 | 0.39 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7439-96-5 | |
| Potassium | **436J** | ug/L | 500 | 69.7 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7440-09-7 | |
| Sodium | **6420** | ug/L | 500 | 115 | 1 | 05/21/25 10:30 | 06/03/25 18:03 | 7440-23-5 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **375** | mg/L | 20.0 | 10.5 | 1 | | 05/16/25 17:04 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **449** | mg/L | 10.0 | 10.0 | 1 | | 05/13/25 15:28 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **10.6** | mg/L | 1.0 | 0.53 | 1 | | 06/02/25 23:55 | 16887-00-6 | |
| Fluoride | **0.30** | mg/L | 0.20 | 0.12 | 1 | | 06/02/25 23:55 | 16984-48-8 | |
| Sulfate | **24.5** | mg/L | 10.0 | 5.5 | 10 | | 06/03/25 00:07 | 14808-79-8 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935320
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474941008

METHOD BLANK: 3707170 Matrix: Water
Associated Lab Samples: 60474941008

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | <6.4 | 100 | 6.4 | 05/23/25 16:24 | |
| Calcium | ug/L | <26.9 | 200 | 26.9 | 05/23/25 16:24 | |
| Iron | ug/L | <9.1 | 50.0 | 9.1 | 05/23/25 16:24 | |
| Magnesium | ug/L | <20.1 | 50.0 | 20.1 | 05/23/25 16:24 | |
| Manganese | ug/L | <0.39 | 5.0 | 0.39 | 05/23/25 16:24 | |
| Potassium | ug/L | <69.7 | 500 | 69.7 | 05/23/25 16:24 | |
| Sodium | ug/L | <115 | 500 | 115 | 05/23/25 16:24 | |

LABORATORY CONTROL SAMPLE: 3707171

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | 1000 | 892 | 89 | 85-115 | |
| Calcium | ug/L | 10000 | 10000 | 100 | 85-115 | |
| Iron | ug/L | 10000 | 9830 | 98 | 85-115 | |
| Magnesium | ug/L | 10000 | 9670 | 97 | 85-115 | |
| Manganese | ug/L | 1000 | 983 | 98 | 85-115 | |
| Potassium | ug/L | 10000 | 9690 | 97 | 85-115 | |
| Sodium | ug/L | 10000 | 9600 | 96 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3707172 3707173

| Parameter | Units | 60474941004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 105 | 1000 | 1000 | 986 | 997 | 88 | 89 | 70-130 | 1 | 20 | |
| Calcium | ug/L | 155000 | 10000 | 10000 | 163000 | 165000 | 74 | 99 | 70-130 | 2 | 20 | |
| Iron | ug/L | 4070 | 10000 | 10000 | 13600 | 13600 | 95 | 95 | 70-130 | 0 | 20 | |
| Magnesium | ug/L | 31500 | 10000 | 10000 | 40300 | 40900 | 88 | 94 | 70-130 | 2 | 20 | |
| Manganese | ug/L | 756 | 1000 | 1000 | 1670 | 1720 | 92 | 96 | 70-130 | 3 | 20 | |
| Potassium | ug/L | 5420 | 10000 | 10000 | 14900 | 15200 | 95 | 98 | 70-130 | 2 | 20 | |
| Sodium | ug/L | 5880 | 10000 | 10000 | 15000 | 15300 | 91 | 95 | 70-130 | 2 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3707174 3707175

| Parameter | Units | 60474942001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 75.3J | 1000 | 1000 | 942 | 927 | 87 | 85 | 70-130 | 2 | 20 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3707174 3707175

| Parameter | Units | 60474942001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ug/L | 118000 | 10000 | 10000 | 125000 | 124000 | 71 | 61 | 70-130 | 1 | 20 | M1 |
| Iron | ug/L | 16.4J | 10000 | 10000 | 9240 | 9190 | 92 | 92 | 70-130 | 1 | 20 | |
| Magnesium | ug/L | 22200 | 10000 | 10000 | 30600 | 30500 | 84 | 83 | 70-130 | 0 | 20 | |
| Manganese | ug/L | 371 | 1000 | 1000 | 1290 | 1270 | 92 | 90 | 70-130 | 1 | 20 | |
| Potassium | ug/L | 4560 | 10000 | 10000 | 14100 | 13900 | 95 | 93 | 70-130 | 1 | 20 | |
| Sodium | ug/L | 4050 | 10000 | 10000 | 13100 | 13000 | 91 | 89 | 70-130 | 2 | 20 | |

MATRIX SPIKE SAMPLE: 3707176

| Parameter | Units | 60474940002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Boron | ug/L | 853 | 1000 | 1720 | 86 | 70-130 | |
| Calcium | ug/L | 140000 | 10000 | 145000 | 54 | 70-130 | M1 |
| Iron | ug/L | <9.1 | 10000 | 9520 | 95 | 70-130 | |
| Magnesium | ug/L | 45900 | 10000 | 54000 | 81 | 70-130 | |
| Manganese | ug/L | 47.6 | 1000 | 998 | 95 | 70-130 | |
| Potassium | ug/L | 4090 | 10000 | 13500 | 94 | 70-130 | |
| Sodium | ug/L | 28800 | 10000 | 37300 | 85 | 70-130 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935604
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

METHOD BLANK: 3708656 Matrix: Water
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | <6.4 | 100 | 6.4 | 05/30/25 16:42 | |
| Calcium | ug/L | <26.9 | 200 | 26.9 | 05/30/25 16:42 | |
| Iron | ug/L | <9.1 | 50.0 | 9.1 | 05/30/25 16:42 | |
| Magnesium | ug/L | <20.1 | 50.0 | 20.1 | 05/30/25 16:42 | |
| Manganese | ug/L | <0.39 | 5.0 | 0.39 | 05/30/25 16:42 | |
| Potassium | ug/L | <69.7 | 500 | 69.7 | 05/30/25 16:42 | |
| Sodium | ug/L | <115 | 500 | 115 | 05/30/25 16:42 | |

LABORATORY CONTROL SAMPLE: 3708657

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | 1000 | 936 | 94 | 85-115 | |
| Calcium | ug/L | 10000 | 10100 | 101 | 85-115 | |
| Iron | ug/L | 10000 | 10100 | 101 | 85-115 | |
| Magnesium | ug/L | 10000 | 10000 | 100 | 85-115 | |
| Manganese | ug/L | 1000 | 978 | 98 | 85-115 | |
| Potassium | ug/L | 10000 | 9850 | 99 | 85-115 | |
| Sodium | ug/L | 10000 | 10100 | 101 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3708658 3708659

| Parameter | Units | 60474940005 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 2870 | 1000 | 1000 | 3730 | 3740 | 86 | 87 | 70-130 | 0 | 20 | |
| Calcium | ug/L | 185000 | 10000 | 10000 | 190000 | 190000 | 48 | 52 | 70-130 | 0 | 20 | M1 |
| Iron | ug/L | <9.1 | 10000 | 10000 | 9900 | 9520 | 99 | 95 | 70-130 | 4 | 20 | |
| Magnesium | ug/L | 50900 | 10000 | 10000 | 59300 | 59200 | 83 | 83 | 70-130 | 0 | 20 | |
| Manganese | ug/L | 607 | 1000 | 1000 | 1530 | 1530 | 92 | 92 | 70-130 | 0 | 20 | |
| Potassium | ug/L | 4450 | 10000 | 10000 | 14100 | 14000 | 97 | 96 | 70-130 | 1 | 20 | |
| Sodium | ug/L | 22100 | 10000 | 10000 | 31300 | 31100 | 92 | 90 | 70-130 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3708677 3708678

| Parameter | Units | 60474940006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 6520 | 1000 | 1000 | 7460 | 7470 | 94 | 95 | 70-130 | 0 | 20 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3708677 3708678

| Parameter | Units | 60474940006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ug/L | 339000 | 10000 | 10000 | 343000 | 346000 | 45 | 72 | 70-130 | 1 | 20 | M1 |
| Iron | ug/L | <9.1 | 10000 | 10000 | 9720 | 9480 | 97 | 95 | 70-130 | 2 | 20 | |
| Magnesium | ug/L | 74600 | 10000 | 10000 | 83100 | 83500 | 85 | 89 | 70-130 | 0 | 20 | |
| Manganese | ug/L | 1200 | 1000 | 1000 | 2160 | 2120 | 96 | 92 | 70-130 | 2 | 20 | |
| Potassium | ug/L | 5510 | 10000 | 10000 | 15500 | 15200 | 100 | 96 | 70-130 | 2 | 20 | |
| Sodium | ug/L | 76900 | 10000 | 10000 | 86400 | 86400 | 95 | 95 | 70-130 | 0 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3708679 3708680

| Parameter | Units | 60475118003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 88.9J | 1000 | 1000 | 1000 | 1020 | 91 | 93 | 70-130 | 2 | 20 | |
| Calcium | ug/L | 143000 | 10000 | 10000 | 151000 | 154000 | 82 | 107 | 70-130 | 2 | 20 | |
| Iron | ug/L | <9.1 | 10000 | 10000 | 9660 | 9790 | 97 | 98 | 70-130 | 1 | 20 | |
| Magnesium | ug/L | 27700 | 10000 | 10000 | 36900 | 37500 | 92 | 99 | 70-130 | 2 | 20 | |
| Manganese | ug/L | 118 | 1000 | 1000 | 1080 | 1080 | 96 | 96 | 70-130 | 0 | 20 | |
| Potassium | ug/L | 8110 | 10000 | 10000 | 17900 | 17900 | 98 | 98 | 70-130 | 0 | 20 | |
| Sodium | ug/L | 5510 | 10000 | 10000 | 15200 | 15400 | 97 | 99 | 70-130 | 1 | 20 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935894
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60474805001, 60474805002

METHOD BLANK: 3709607 Matrix: Water
Associated Lab Samples: 60474805001, 60474805002

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | <6.4 | 100 | 6.4 | 06/03/25 17:53 | |
| Calcium | ug/L | <26.9 | 200 | 26.9 | 06/03/25 17:53 | |
| Iron | ug/L | <9.1 | 50.0 | 9.1 | 06/03/25 17:53 | |
| Magnesium | ug/L | <20.1 | 50.0 | 20.1 | 06/03/25 17:53 | |
| Manganese | ug/L | <0.39 | 5.0 | 0.39 | 06/03/25 17:53 | |
| Potassium | ug/L | <69.7 | 500 | 69.7 | 06/03/25 17:53 | |
| Sodium | ug/L | <115 | 500 | 115 | 06/03/25 17:53 | |

LABORATORY CONTROL SAMPLE: 3709608

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | 1000 | 915 | 92 | 85-115 | |
| Calcium | ug/L | 10000 | 10000 | 100 | 85-115 | |
| Iron | ug/L | 10000 | 10100 | 101 | 85-115 | |
| Magnesium | ug/L | 10000 | 9660 | 97 | 85-115 | |
| Manganese | ug/L | 1000 | 954 | 95 | 85-115 | |
| Potassium | ug/L | 10000 | 9540 | 95 | 85-115 | |
| Sodium | ug/L | 10000 | 9900 | 99 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3709609 3709610

| Parameter | Units | 60474805001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 56.5J | 1000 | 1000 | 1030 | 980 | 97 | 92 | 70-130 | 5 | 20 | |
| Calcium | ug/L | 177000 | 10000 | 10000 | 186000 | 176000 | 93 | -8 | 70-130 | 6 | 20 | M1 |
| Iron | ug/L | 38.1J | 10000 | 10000 | 10700 | 9930 | 106 | 99 | 70-130 | 7 | 20 | |
| Magnesium | ug/L | 35100 | 10000 | 10000 | 44900 | 42400 | 98 | 73 | 70-130 | 6 | 20 | |
| Manganese | ug/L | 749 | 1000 | 1000 | 1720 | 1680 | 97 | 93 | 70-130 | 2 | 20 | |
| Potassium | ug/L | 479J | 10000 | 10000 | 10600 | 10300 | 102 | 98 | 70-130 | 3 | 20 | |
| Sodium | ug/L | 5540 | 10000 | 10000 | 15900 | 15100 | 104 | 96 | 70-130 | 5 | 20 | |

MATRIX SPIKE SAMPLE: 3709611

| Parameter | Units | 60475280007 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Boron | ug/L | 126 | 1000 | 1090 | 96 | 70-130 | |
| Calcium | ug/L | 128000 | 10000 | 143000 | 152 | 70-130 | M1 |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

MATRIX SPIKE SAMPLE: 3709611

| Parameter | Units | 60475280007 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Iron | ug/L | 777 | 10000 | 11400 | 106 | 70-130 | |
| Magnesium | ug/L | 15900 | 10000 | 26200 | 103 | 70-130 | |
| Manganese | ug/L | 13.0 | 1000 | 995 | 98 | 70-130 | |
| Potassium | ug/L | 6090 | 10000 | 16200 | 101 | 70-130 | |
| Sodium | ug/L | 61300 | 10000 | 72800 | 114 | 70-130 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935400
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60474805001, 60474805002

METHOD BLANK: 3707605 Matrix: Water
Associated Lab Samples: 60474805001, 60474805002

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | 20.0 | 10.5 | 05/16/25 14:53 | |

LABORATORY CONTROL SAMPLE: 3707606

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 500 | 540 | 108 | 90-110 | |

SAMPLE DUPLICATE: 3707607

| Parameter | Units | 60474665010 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 468 | 456 | 3 | 10 | |

SAMPLE DUPLICATE: 3707608

| Parameter | Units | 60474796004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 293 | 301 | 3 | 10 | |

SAMPLE DUPLICATE: 3707609

| Parameter | Units | 60474805001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 555 | 538 | 3 | 10 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935488
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474941008

METHOD BLANK: 3708147 Matrix: Water
Associated Lab Samples: 60474941008

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | 20.0 | 10.5 | 05/16/25 22:17 | |

LABORATORY CONTROL SAMPLE: 3708148

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 500 | 538 | 108 | 90-110 | |

SAMPLE DUPLICATE: 3708149

| Parameter | Units | 60474882003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 328 | 322 | 2 | 10 | |

SAMPLE DUPLICATE: 3708150

| Parameter | Units | 60474941004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 465 | 460 | 1 | 10 | |

SAMPLE DUPLICATE: 3708151

| Parameter | Units | 60474941008 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 289 | 299 | 3 | 10 | |

SAMPLE DUPLICATE: 3708152

| Parameter | Units | 60474802006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 319 | 309 | 3 | 10 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935733
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

METHOD BLANK: 3709029 Matrix: Water
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | 20.0 | 10.5 | 05/20/25 15:12 | |

LABORATORY CONTROL SAMPLE: 3709030

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 500 | 495 | 99 | 90-110 | |

SAMPLE DUPLICATE: 3709031

| Parameter | Units | 60475110002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 843 | 864 | 2 | 10 | |

SAMPLE DUPLICATE: 3709032

| Parameter | Units | 60474940006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 387 | 382 | 1 | 10 | |

SAMPLE DUPLICATE: 3709033

| Parameter | Units | 60474805022 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 317 | 305 | 4 | 10 | |

SAMPLE DUPLICATE: 3709034

| Parameter | Units | 60475118003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 424 | 424 | 0 | 10 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 934870
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60474805001, 60474805002

METHOD BLANK: 3704941 Matrix: Water
Associated Lab Samples: 60474805001, 60474805002

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 05/13/25 15:26 | |

LABORATORY CONTROL SAMPLE: 3704942

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 1010 | 101 | 80-120 | |

SAMPLE DUPLICATE: 3704943

| Parameter | Units | 60474796004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 3330 | 3320 | 0 | 10 | |

SAMPLE DUPLICATE: 3704944

| Parameter | Units | 60474832004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 443 | 449 | 1 | 10 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935019
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474941008

METHOD BLANK: 3705708 Matrix: Water
Associated Lab Samples: 60474941008

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 05/14/25 16:07 | |

LABORATORY CONTROL SAMPLE: 3705709

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 1000 | 100 | 80-120 | |

SAMPLE DUPLICATE: 3705710

| Parameter | Units | 60474942001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 466 | 477 | 2 | 10 | |

SAMPLE DUPLICATE: 3705711

| Parameter | Units | 60474802006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 431 | 423 | 2 | 10 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 935357 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

METHOD BLANK: 3707336 Matrix: Water
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 05/19/25 15:00 | |

LABORATORY CONTROL SAMPLE: 3707337

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 981 | 98 | 80-120 | |

SAMPLE DUPLICATE: 3707338

| Parameter | Units | 60474940006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1770 | 1790 | 1 | 10 | |

SAMPLE DUPLICATE: 3707339

| Parameter | Units | 60475118003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 553 | 544 | 2 | 10 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 937191
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60474805001, 60474805002

METHOD BLANK: 3715440 Matrix: Water
Associated Lab Samples: 60474805001, 60474805002

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.53 | 1.0 | 0.53 | 06/02/25 17:48 | |
| Fluoride | mg/L | <0.12 | 0.20 | 0.12 | 06/02/25 17:48 | |
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 06/02/25 17:48 | |

LABORATORY CONTROL SAMPLE: 3715441

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.8 | 96 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.4 | 94 | 90-110 | |
| Sulfate | mg/L | 5 | 5.0 | 100 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3715442 3715443

| Parameter | Units | 60474796004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 50.1 | 50 | 50 | 96.0 | 89.8 | 92 | 79 | 80-120 | 7 | 15 | M1 |
| Fluoride | mg/L | ND | 25 | 25 | 21.9 | 20.4 | 85 | 79 | 80-120 | 7 | 15 | M1 |
| Sulfate | mg/L | 1780 | 1000 | 1000 | 3010 | 2870 | 123 | 109 | 80-120 | 5 | 15 | M1 |

SAMPLE DUPLICATE: 3715470

| Parameter | Units | 60474796004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 50.1 | 43.6 | 14 | 15 | |
| Fluoride | mg/L | ND | <1.2 | | 15 | |
| Sulfate | mg/L | 1780 | 1880 | 6 | 15 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 937354
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474941008

METHOD BLANK: 3716100 Matrix: Water
Associated Lab Samples: 60474941008

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 0.54J | 1.0 | 0.53 | 06/11/25 00:29 | |
| Fluoride | mg/L | <0.12 | 0.20 | 0.12 | 06/11/25 00:29 | |
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 06/11/25 00:29 | |

LABORATORY CONTROL SAMPLE: 3716101

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.9 | 98 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.5 | 100 | 90-110 | |
| Sulfate | mg/L | 5 | 5.1 | 102 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3716102 3716103

| Parameter | Units | 60474802006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 46.6 | 25 | 25 | 68.6 | 68.0 | 88 | 86 | 80-120 | 1 | 15 | H1 |
| Fluoride | mg/L | 0.56 | 2.5 | 2.5 | 2.7 | 2.7 | 85 | 85 | 80-120 | 0 | 15 | H1 |
| Sulfate | mg/L | 8.0 | 5 | 5 | 13.2 | 13.2 | 103 | 103 | 80-120 | 0 | 15 | H1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3716105 3716106

| Parameter | Units | 60474942001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 10.8 | 5 | 5 | 15.9 | 16.0 | 103 | 105 | 80-120 | 1 | 15 | H1 |
| Fluoride | mg/L | 0.34 | 2.5 | 2.5 | 2.5 | 2.6 | 87 | 90 | 80-120 | 3 | 15 | H1 |
| Sulfate | mg/L | 57.3 | 50 | 50 | 106 | 105 | 98 | 96 | 80-120 | 1 | 15 | H1 |

SAMPLE DUPLICATE: 3716104

| Parameter | Units | 60474802006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 46.6 | 45.6 | 2 | 15 | H1 |
| Fluoride | mg/L | 0.56 | 0.26 | 72 | 15 | D6,H1 |
| Sulfate | mg/L | 8.0 | 8.1 | 1 | 15 | H1 |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

SAMPLE DUPLICATE: 3716107

| Parameter | Units | 60474942001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 10.8 | 11.5 | 6 | 15 | H1 |
| Fluoride | mg/L | 0.34 | 0.14J | | 15 | H1 |
| Sulfate | mg/L | 57.3 | 56.3 | 2 | 15 | H1 |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

QC Batch: 937713
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

METHOD BLANK: 3717653 Matrix: Water
Associated Lab Samples: 60475118001, 60475118002, 60475118003, 60475118004, 60475118005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.53 | 1.0 | 0.53 | 06/06/25 16:06 | |
| Fluoride | mg/L | <0.12 | 0.20 | 0.12 | 06/06/25 16:06 | |
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 06/06/25 16:06 | |

LABORATORY CONTROL SAMPLE: 3717654

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 5.0 | 100 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.5 | 100 | 90-110 | |
| Sulfate | mg/L | 5 | 5.2 | 104 | 90-110 | |

MATRIX SPIKE SAMPLE: 3717657

| Parameter | Units | 60475332016 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 93.3 | 50 | 94.7 | 3 | 80-120 | H1,M1 |
| Fluoride | mg/L | 0.73 | 2.5 | 2.5 | 73 | 80-120 | M1 |
| Sulfate | mg/L | 1.4 | 5 | 5.2 | 76 | 80-120 | M1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3717659 3717660

| Parameter | Units | 60475118003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 19.4 | 5 | 5 | 23.1 | 22.9 | 75 | 70 | 80-120 | 1 | 15 | E,M1 |
| Fluoride | mg/L | <0.12 | 2.5 | 2.5 | 1.8 | 1.7 | 70 | 67 | 80-120 | 5 | 15 | M1 |
| Sulfate | mg/L | 51.5 | 50 | 50 | 105 | 105 | 107 | 107 | 80-120 | 0 | 15 | H1 |

SAMPLE DUPLICATE: 3717661

| Parameter | Units | 60475118003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 19.4 | 19.7 | 2 | 15 | |
| Fluoride | mg/L | <0.12 | <0.12 | | 15 | |
| Sulfate | mg/L | 51.5 | 41.5 | 21 | 15 | D6 |

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# QUALIFIERS

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

## DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| D6 | The precision between the sample and sample duplicate exceeded laboratory control limits. |
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| H1 | Analysis conducted outside the EPA method holding time. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level. |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPD (Event 2)
Pace Project No.: 60475118

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60474805001** | **S-BMW-1S** | EPA 200.7 | 935894 | EPA 200.7 | 935991 |
| **60474805002** | **S-BMW-3S** | EPA 200.7 | 935894 | EPA 200.7 | 935991 |
| **60474941008** | **S-UG-2** | EPA 200.7 | 935320 | EPA 200.7 | 935524 |
| **60475118001** | **S-TMW-4** | EPA 200.7 | 935604 | EPA 200.7 | 935626 |
| **60475118002** | **S-TMW-5** | EPA 200.7 | 935604 | EPA 200.7 | 935626 |
| **60475118003** | **S-TMW-6** | EPA 200.7 | 935604 | EPA 200.7 | 935626 |
| **60475118004** | **S-SCPD-DUP-1** | EPA 200.7 | 935604 | EPA 200.7 | 935626 |
| **60475118005** | **S-SCPD-FB-1** | EPA 200.7 | 935604 | EPA 200.7 | 935626 |
| **60474805001** | **S-BMW-1S** | SM 2320B | 935400 | | |
| **60474805002** | **S-BMW-3S** | SM 2320B | 935400 | | |
| **60474941008** | **S-UG-2** | SM 2320B | 935488 | | |
| **60475118001** | **S-TMW-4** | SM 2320B | 935733 | | |
| **60475118002** | **S-TMW-5** | SM 2320B | 935733 | | |
| **60475118003** | **S-TMW-6** | SM 2320B | 935733 | | |
| **60475118004** | **S-SCPD-DUP-1** | SM 2320B | 935733 | | |
| **60475118005** | **S-SCPD-FB-1** | SM 2320B | 935733 | | |
| **60474805001** | **S-BMW-1S** | SM 2540C | 934870 | | |
| **60474805002** | **S-BMW-3S** | SM 2540C | 934870 | | |
| **60474941008** | **S-UG-2** | SM 2540C | 935019 | | |
| **60475118001** | **S-TMW-4** | SM 2540C | 935357 | | |
| **60475118002** | **S-TMW-5** | SM 2540C | 935357 | | |
| **60475118003** | **S-TMW-6** | SM 2540C | 935357 | | |
| **60475118004** | **S-SCPD-DUP-1** | SM 2540C | 935357 | | |
| **60475118005** | **S-SCPD-FB-1** | SM 2540C | 935357 | | |
| **60474805001** | **S-BMW-1S** | EPA 300.0 | 937191 | | |
| **60474805002** | **S-BMW-3S** | EPA 300.0 | 937191 | | |
| **60474941008** | **S-UG-2** | EPA 300.0 | 937354 | | |
| **60475118001** | **S-TMW-4** | EPA 300.0 | 937713 | | |
| **60475118002** | **S-TMW-5** | EPA 300.0 | 937713 | | |
| **60475118003** | **S-TMW-6** | EPA 300.0 | 937713 | | |
| **60475118004** | **S-SCPD-DUP-1** | EPA 300.0 | 937713 | | |
| **60475118005** | **S-SCPD-FB-1** | EPA 300.0 | 937713 | | |



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WO# : 60475118

60475118

| Pace ANALYTICAL SERVICES | DC#_Title: ENV-FRM-LENE-0009_Sample C | | |
|---|---|---|---|
| | Revision: 2 | Effective Date: 01/12/2022 | Issued By: Lenexa |

Client Name: Rocksmith Geoeng

**Courier:** FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☑ Client ☐ Other ☐

**Tracking #:** _____ Pace Shipping Label Used? Yes ☐ No ☑

**Custody Seal on Cooler/Box Present:** Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

**Packing Material:** Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☑ Other ☐

**Thermometer Used:** T-301 **Type of Ice:** (Wet) Blue None

**Cooler Temperature (°C):** **As-read** 1.4/1.0 **Corr. Factor** +0.1 **Corrected** 1.5/1.1

**Date and initials of person examining contents:** DV 5/14/25

Temperature should be above freezing to 6°C

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | |
| Sufficient volume: | ☑Yes ☐No ☐N/A | |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | |
| Containers intact: | ☑Yes ☐No ☐N/A | |
| Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? | ☐Yes ☐No ☑N/A | |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | |
| Sample labels match COC: Date / time / ID / analyses | ☑Yes ☐No ☐N/A | |
| Samples contain multiple phases? Matrix: WT | ☐Yes ☑No ☐N/A | |
| Containers requiring pH preservation in compliance? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 96888 | ☑Yes ☐No ☐N/A | List sample IDs, volumes, lot #'s of preservative and the date/time added. |
| Cyanide water sample checks: Lead acetate strip turns dark? (Record only) | ☐Yes ☐No | |
| Potassium iodide test strip turns blue/purple? (Preserve) | ☐Yes ☐No | |
| Trip Blank present: | ☐Yes ☐No ☑N/A | |
| Headspace in VOA vials ( >6mm): | ☐Yes ☐No ☑N/A | |
| Samples from USDA Regulated Area: State: | ☐Yes ☐No ☑N/A | |
| Additional labels attached to 5035A / TX1005 vials in the field? | ☐Yes ☐No ☑N/A | |

**Client Notification/ Resolution:** Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace® Location Requested (City/State):
Pace Analytical Kansas
9608 Loiret Blvd., Lenexa, KS 66219

# CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

60475118

Scan QR Code for instructions

| | | | |
|---|---|---|---|
| Company Name: | Rocksmith Geoengineering, LLC. | Contact/Report To: | Mark Haddock |
| Street Address: | 2320 Creve Coeur Mill Road, Maryland Heights, MO 63043 | Phone #: | 314-974-6578 |
| | | E-Mail: | mark.haddock@rocksmithgeo.com |
| | | Cc E-Mail: | |
| Customer Project #: | COC# 12 | | |
| Project Name: | AMEREN SCPD (Event 2) | Invoice To: | Mark Haddock |
| | | Invoice E-Mail: | mark.haddock@rocksmithgeo.com |
| Site Collection Info/Facility ID (as applicable): | | Purchase Order # (if applicable): | |
| | | Quote #: | |
| Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET | | County / State origin of sample(s): | Missouri |
| Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other | | Regulatory Program (DW, RCRA, etc.) as applicable: | Reportable [ ] Yes [ ] No |
| | | Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____ | DW PWSID # or WW Permit # as applicable: |
| | | Date Results Requested: | Field Filtered (if applicable): [ ] Yes [ ] No Analysis: |

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Specify Container Size ** — 1 | 1 | 3

Identify Container Preservative Type*** — 1 | 1 | 2

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

| Customer Sample ID | Matrix * | Comp / Grab | Composite Start Date | Composite Start Time | Collected or Composite End Date | Collected or Composite End Time | # Cont. | Res. Chlorine Results | Res. Chlorine Units | Chloride/Fluoride/Sulfate | TDS / Alkalinity | App III and Cat/An Metals (200.7)* | Sample Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-TMW-4 | WT | G | | | 5/12/25 | 1107 | 2 | | | ✓ | ✓ | ✓ | |
| S-TMW-5 | WT | G | | | | 1011 | 2 | | | ✓ | ✓ | ✓ | |
| S-TMW-6 | WT | G | | | | 0913 | 2 | | | ✓ | ✓ | ✓ | |
| S-SCPD-DUP-1 | WT | G | | | | — | 2 | | | ✓ | ✓ | ✓ | |
| S-SCPD-FB-1 | WT | G | | | | 1125 | 2 | | | ✓ | ✓ | ✓ | |
| S-SCPD-MS-1 | WT | G | | | | 0913 | 2 | | | ✓ | ✓ | ✓ | @S-TMW-6 |
| S-SCPD-MSD-1 | WT | G | | | | 0913 | 2 | | | ✓ | ✓ | ✓ | @S-TMW-6 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Lab Use Only:
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3244566

Preservation non-conformance identified for sample:

Additional Instructions from Pace®:
* - App III and Cat/An Metals* - EPA 200.7: B, Ca, Fe, Mg, Mn, K, Na

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

| # Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C) | Corrected Temp. (°C) | On Ice: |
|---|---|---|---|---|---|
| 2 | T-301 | +0.1 | 1.4 / 1.0 | 1.5 / 1.1 | |

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| Rocksmith | 5-13-25 / 1420 | | 5/14/25 06:45 |
| | | | |
| | | | |
| | | | |

Tracking Number:

Delivered by: [ ] In- Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other

Page: 1 of 1



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Client: Rocksmith Geoeng Profile/EZ#: 3244566

Site: Notes

| COC Line Item | Matrix | VG9H | DG9H | DG9Q | VG9U | DG9U | DG9M | DG9B | BG1U | AG1H | AG1U | AG2U | AG3S | AG4U | AG5U | JGFU | WGKU | WGDU | BP1U | BP2U | BP3U | BP1N | BP3N | BP3F | BP3S | BP3B | BP3Z | WPDU | ZPLC | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WT | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | |
| 2 | ↓ | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | |
| 3 | | | | | | | | | | | | | (MS/MSD) | | | | | | 3 | | | | 3 | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| Glass | | | |
|---|---|---|---|
| DG9B | 40mL bisulfate clear vial | WGKU | 8oz clear soil jar |
| DG9H | 40mL HCl amber voa vial | WGFU | 4oz clear soil jar |
| DG9M | 40mL MeOH clear vial | WG2U | 2oz clear soil jar |
| DG9Q | 40mL TSP amber vial | JGFU | 4oz unpreserved amber wide |
| DG9S | 40mL H2SO4 amber vial | AG0U | 100mL unores amber glass |
| DG9T | 40mL Na Thio amber vial | AG1H | 1L HCl amber glass |
| DG9U | 40mL amber unpreserved | AG1S | 1L H2SO4 amber glass |
| VG9H | 40mL HCl clear vial | AG1T | 1L Na Thiosulfate clear/amber glass |
| VG9T | 40mL Na Thio. clear vial | AG1U | 1liter unpres amber glass |
| VG9U | 40mL unpreserved clear vial | AG2N | 500mL HNO3 amber glass |
| BG1S | 1liter H2SO4 clear glass | AG2S | 500mL H2SO4 amber glass |
| BG1U | 1liter unpres glass | AG3S | 250mL H2SO4 amber glass |
| BG3H | 250mL HCL Clear glass | AG2U | 500mL unpres amber glass |
| BG3U | 250mL Unpres Clear glass | AG3U | 250mL unpres amber glass |
| WGDU | 16oz clear soil jar | AG4U | 125mL unpres amber glass |
| | | AG5U | 100mL unpres amber glass |

| Plastic | |
|---|---|
| BP1B | 1L NAOH plastic |
| BP1N | 1L HNO3 plastic |
| BP1S | 1L H2SO4 plastic |
| BP1U | 1L unpreserved plastic |
| BP1Z | 1L NaOH, Zn Acetate |
| BP2B | 500mL NAOH plastic |
| BP2N | 500mL HNO3 plastic |
| BP2S | 500mL H2SO4 plastic |
| BP2U | 500mL unpreserved plastic |
| BP2Z | 500mL NaOH, Zn Acetate |
| BP3B | 250mL NaOH plastic |
| BP3F | 250mL HNO3 plastic - field filtered |
| BP3N | 250mL HNO3 plastic |
| BP3U | 250mL unpreserved plastic |
| BP3S | 250mL H2SO4 plastic |
| BP3Z | 250mL NaOH, Zn Acetate |
| BP4U | 125mL unpreserved plastic |
| BP4N | 125mL HNO3 plastic |
| BP4S | 125mL H2SO4 plastic |
| WPDU | 16oz unpresserved plstic |

| Misc. | |
|---|---|
| I | Wipe/Swab |
| SP5T | 120mL Coliform Na Thiosulfate |
| ZPLC | Ziploc Bag |
| AF | Air Filter |
| C | Air Cassettes |
| R | Terracore Kit |
| U | Summa Can |

| Matrix | |
|---|---|
| WT | Water |
| SL | Solid |
| NAL | Non-aqueous Liquid |
| OL | OIL |
| WP | Wipe |
| DW | Drinking Water |

Work Order Number: 60475118

Pace® Location Requested (City/State):
Pace Analytical Kansas
9608 Loiret Blvd., Lenexa, KS 66219

# CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

| | | | |
|---|---|---|---|
| Company Name: | Rocksmith Geoengineering, LLC. | Contact/Report To: | Mark Haddock |
| Street Address: | 2320 Creve Coeur Mill Road, Maryland Heights, MO 63043 | Phone #: | 314-974-6578 |
| | | E-Mail: | mark.haddock@rocksmithgeo.com |
| | | Cc E-Mail: | |
| Customer Project #: | COC# 12 | | |
| Project Name: | AMEREN SCPD (Event 2) | Invoice To: | Mark Haddock |
| | | Invoice E-Mail: | mark.haddock@rocksmithgeo.com |
| Site Collection Info/Facility ID (as applicable): | | Purchase Order # (if applicable): | |
| | | Quote #: | |
| Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET | | County / State origin of sample(s): | Missouri |

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

**Rush (Pre-approval required):**
[ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____

DW PWSID # or WW Permit # as applicable:

**Date Results Requested:**

Field Filtered (if applicable): [ ] Yes [ ] No
Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Composite Start Date | Composite Start Time | Collected or Composite End Date | Collected or Composite End Time | # Cont. | Res. Chlorine Results | Res. Chlorine Units | Chloride/Fluoride/Sulfate | TDS / Alkalinity | App III and Cat/An Metals (200.7)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-TMW-4 | WT | | | | | | | | | | | |
| S-TMW-5 | WT | | | | | | | | | | | |
| S-TMW-6 | WT | | | | | | | | | | | |
| S-SCPD-DUP-1 | WT | | | | | | | | | | | |
| S-SCPD-FB-1 | WT | | | | | | | | | | | |
| S-SCPD-MS-1 | WT | | | | | | | | | | | |
| S-SCPD-MSD-1 | WT | | | | | | | | | | | |
| S-BMW-1S | WT | G | | | 5-8-25 | 1505 | 2 | | | ✓ | ✓ | ✓ |
| S-BMW-3S | WT | G | | | 1 | 1410 | 2 | | | ✓ | ✓ | ✓ |
| | | | | | | | | | | | | |

Specify Container Size **: 1 1 3
Identify Container Preservative Type***: 1 1 2
Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3244566

Sample Comment

Preservation non-conformance identified for sample.

Additional Instructions from Pace®:
*** - App III and Cat/An Metals* - EPA 200.7: B, Ca, Fe, Mg, Mn, K, Na**

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

| # Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C) | Corrected Temp. (°C) | On Ice: |
|---|---|---|---|---|---|
| | | | | | |

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Tracking Number: |
|---|---|---|---|---|
| Grant Morey / Rocksmith | 5-8-25 / 0800 | | | |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Delivered by: [ ] In- Person [ ] Courier |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | [ ] FedEx [ ] UPS [ ] Other |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Page: 1 of 1 |



Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pace® Location Requested (City/State):
Pace Analytical Kansas
9608 Loiret Blvd., Lenexa, KS 66219

# CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

| | | | |
|---|---|---|---|
| Company Name: | Rocksmith Geoengineering, LLC. | Contact/Report To: | Mark Haddock |
| Street Address: | 2320 Creve Coeur Mill Road, Maryland Heights, MO 63043 | Phone #: | 314-974-6578 |
| | | E-Mail: | mark.haddock@rocksmithgeo.com |
| | | Cc E-Mail: | |
| Customer Project #: | COC# 12 | | |
| Project Name: | AMEREN SCPD (Event 2) | Invoice To: | Mark Haddock |
| | | Invoice E-Mail: | mark.haddock@rocksmithgeo.com |
| Site Collection Info/Facility ID (as applicable): | | Purchase Order # (if applicable): | |
| | | Quote #: | |
| Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET | | County / State origin of sample(s): | Missouri |
| Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other | | Regulatory Program (DW, RCRA, etc.) as applicable: | Reportable [ ] Yes [ ] No |
| | | Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____ | DW PWSID # or WW Permit # as applicable: |
| | | Date Results Requested: | Field Filtered (if applicable): [ ] Yes [ ] No |
| | | | Analysis: |

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Composite Start Date | Composite Start Time | Collected or Composite End Date | Collected or Composite End Time | # Cont. | Res. Chlorine Results | Res. Chlorine Units | Chloride/Fluoride/Sulfate | TDS / Alkalinity | App III and Cat/An Metals (200.7)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-TMW-4 | WT | | | | | | | | | | | |
| S-TMW-5 | WT | | | | | | | | | | | |
| S-TMW-6 | WT | | | | | | | | | | | |
| S-SCPD-DUP-1 | WT | | | | | | | | | | | |
| S-SCPD-FB-1 | WT | | | | | | | | | | | |
| S-SCPD-MS-1 | WT | | | | | | | | | | | |
| S-SCPD-MSD-1 | WT | | | | | | | | | | | |
| S-UG-2 | WT | G | | | 5/8/25 | 1310 | 2 | | | ✓ | ✓ | ✓ |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Specify Container Size **: 1 1 3

Identify Container Preservative Type***: 1 1 2

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only

Proj. Mgr: Jamie Church

AcctNum / Client ID:

Table #:

Profile / Template: 15856

Prelog / Bottle Ord. ID: EZ 3244566

Sample Comment

Preservation non-conformance identified for sample.

Additional Instructions from Pace®:
* - App III and Cat/An Metals* - EPA 200.7: B, Ca, Fe, Mg, Mn, K, Na

Collected By: (Printed Name) John Rasmussen

Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C) | Corrected Temp. (°C) | On Ice:

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Tracking Number: |
|---|---|---|---|---|
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Delivered by: [ ] In- Person [ ] Courier |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | [ ] FedEx [ ] UPS [ ] Other |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: | Page: 1 of 1 |



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# Memorandum

**July 31, 2025**

| | | | |
|---|---|---|---|
| **To:** | Project File<br>Rocksmith Geoengineering, LLC | **Project Number:** | 23009-25 |
| **CC:** | Mark Haddock, Jeffrey Ingram | | |
| **From:** | Jack Rasmussen | **Email:** | Jack.Rasmussen@Rocksmithgeo.com |
| **RE:** | **Data Validation Summary, Sioux Energy Center – SCPD – Data Package 60475118** | | |

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- When a compound was analyzed outside of hold time, the sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a compound was detected in a sample result between the Method Detection Limit (MDL) and Practical Quantification Limit (PQL), the results were recorded at the detection value and qualified as estimates (J).
- When a duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPD
Project Number: 23009-25
Reviewer: J. Rasmussen
Validation Date: 07/31/2025

Laboratory: Pace Analytical
SDG #: 60475118
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM 2320B (Alkalinity); SM 2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-UG-2, S-BMW-1S, S-BMW-3S

**NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).**

| Field Information | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Sampling dates noted? | x | | | 05/07/2025 - 05/08/2025 and 05/12/2025 |
| b) Sampling team indicated? | x | | | GTM/JTR |
| c) Sample location noted? | x | | | |
| d) Sample depth indicated (Soils)? | | | x | |
| e) Sample type indicated (grab/composite)? | x | | | Grab |
| f) Field QC noted? | x | | | See Notes |
| g) Field parameters collected (note types)? | x | | | pH, Spec Cond, Turb, Temp, DO, ORP |
| h) Field Calibration within control limits? | x | | | |
| i) Notations of unacceptable field conditions/performances from field logs or field notes? | | x | | |
| j) Does the laboratory narrative indicate deficiencies? | | | x | No lab narrative. |

Note Deficiencies: _____

| Chain-of-Custody (COC) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was the COC properly completed? | x | | | |
| b) Was the COC signed by both field and laboratory personnel? | x | | | |
| c) Were samples received in good condition? | x | | | |

| General (reference QAPP or Method) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were hold times met for sample pretreatment? | x | | | |
| b) Were hold times met for sample analysis? | | x | | See Notes |
| c) Were the correct preservatives used? | x | | | |
| d) Was the correct method used? | x | | | |
| e) Were appropriate reporting limits achieved? | x | | | |
| f) Were any sample dilutions noted? | x | | | See Notes |
| g) Were any matrix problems noted? | | x | | |

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

| Blanks | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were analytes detected in the method blank(s)? | x | | | See Notes |
| b) Were analytes detected in the field blank(s)? | x | | | See Notes |
| c) Were analytes detected in the equipment blank(s)? | | | x | |
| d) Were analytes detected in the trip blank(s)? | | | x | |

| Laboratory Control Sample (LCS) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a LCS analyzed once per SDG? | x | | | |
| b) Were the proper analytes included in the LCS? | x | | | |
| c) Was the LCS accuracy criteria met? | x | | | |

| Duplicates | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were field duplicates collected (note original and duplicate sample names)? | | | | S-SCPD-DUP-1 @ S-TMW-5 |
| | x | | | See Notes |
| b) Were field dup. precision criteria met (note RPD)? | | x | | See Notes |
| c) Were lab duplicates analyzed (note original and duplicate samples)? | | | | |
| | x | | | See Notes |
| d) Were lab dup. precision criteria met (note RPD)? | | x | | |

| Blind Standards | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a blind standard used (indicate name, analytes included and concentrations)? | | | x | |
| b) Was the %D within control limits? | | | x | |

| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was MS accuracy criteria met? | | x | | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | | | x | |
| b) Was MSD accuracy criteria met? | | x | | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | | | x | |
| c) Were MS/MSD precision criteria met? | x | | | |

**Comments/Notes:**

General:

Sulfate analyzed outside of hole time for sample -008, result qualified as an estimate.

Sulfate some samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Comments/Notes:**

Method Blanks:

3716100: Chloride (0.54J), associated with sample -008. Result > RL and 10x blank, no qualification necessary.

Field Blank:

S-SCPD-FB-1 @ S-TMW-4: Chloride (0.54J), result > RL and < 10x blank. Result qualified as an estimate.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: Field blank RPD precision criteria met, no qualifications necessary.

Lab duplicate RPD: 10%; alkalinity, TDS; 15%; chloride, fluoride, sulfate; 20%; sulfide, other metals.

3716104: Lab RPD exceeds control limits for fluoride, associated with unrelated sample.

3717661: Lab RPD exceeds control limits for sulfate, associated with sample -003. Result qualified as estimate.

MS/MSD:

3707174/3707175: MSD recovery for calcium, MS and RPD within control limits. No qualification necessary.

3707176: MS recovery low for calcium. associated with unrelated sample.

3708658/3708659: MS and MSD recovery low for calcium, RPD okay. Associated with unrelated sample, no qualifications necessary.

3708677/3708678: MS recovery low for calcium, MSD and RPD within control limits. No qualification necessary.

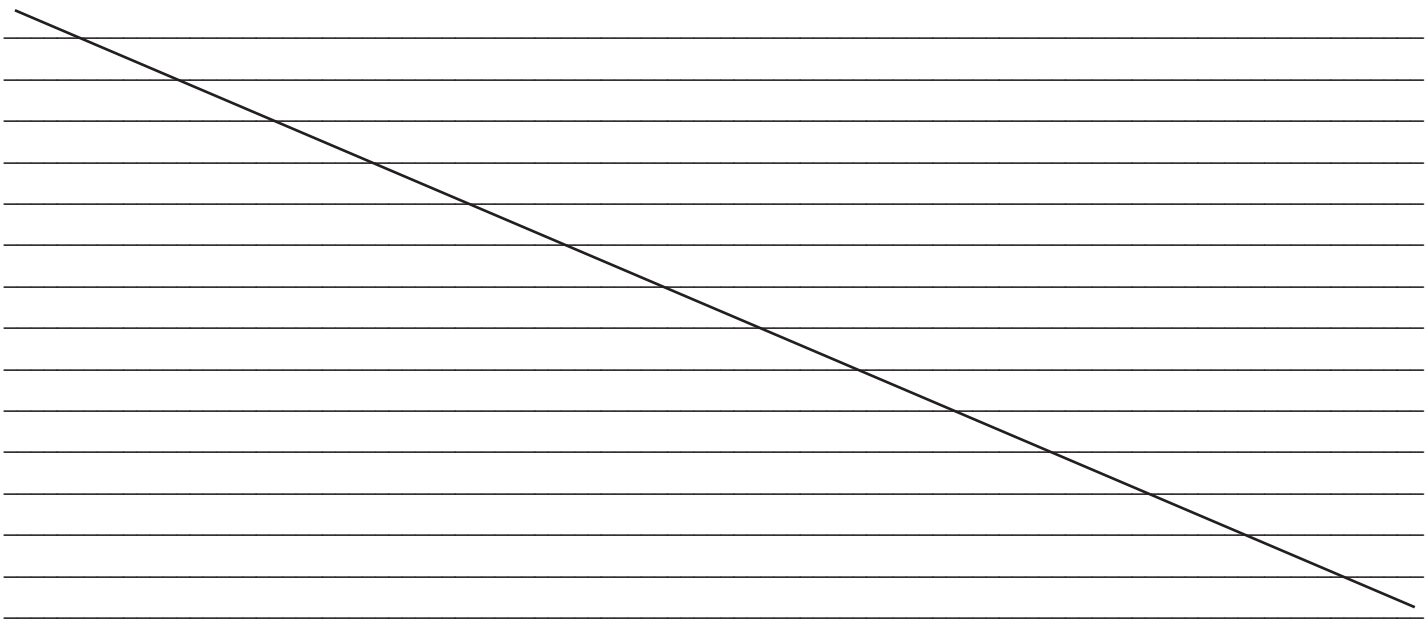
3709609/3709610: MSD recovery below 10% for calcium, MS and RPD within control limits. Associated with sample -001, result qualified as an estimate.

3709611: MS recovery high for calcium, associated with unrelated sample. No qualifications necessary.

3715442/3715443: MSD recovery low for chloride and fluoride, MS and RPD within control limits. MS recovery high for sulfate, MSD and RPD within control limits. No qualifications necessary.

3717657: MS recovery below 10% for chloride. MS recovery low for fluoride and sulfate. Associated with unrelated sample, no qualification necessary.

3717659/3717660: MS and MSD recovery low for chloride and fluoride, RPD within control limits. Associated with sample -003, results qualified as estimates.



## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Data Qualification:**

| Sample Name | Constituent(s) | Result | Qualifier | Reason |
|---|---|---|---|---|
| S-UG-2 | Sulfate | 38.2 | J | Analyzed outside of hold time |
| S-TMW-4 | Chloride | 2.4 | J | Detected in field blank, result > RL and <10x blank |
| S-TMW-6 | Sulfate | 51.5 | J | Lab DUP RPD exceeds control limits |
| S-BMW-1S | Calcium | 177,000 | J- | MSD recovery below 10% |
| S-TMW-6 | Chloride | 19.4 | J- | MS and MSD recovery low, RPD okay |
| " | Fluoride | 0.12 | UJ | " |
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Signature: _____ Date: 07/31/2025

**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 25, 2025

Mark Haddock
Rocksmith Geoengineering, LLC.
2320 Creve Coeur Mill Road
Maryland Heights, MO 63043

RE: Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on July 11, 2025. 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 - Kansas City

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren



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# CERTIFICATIONS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

**Pace Analytical Services Kansas**
9608 Loiret Boulevard, Lenexa, KS 66219
Arkansas Certification #: 88-00679
Illinois Certification #: 2000302023-6
Colorado Division of Oil and Public Safety
Iowa Certification #: 118
Kansas Field Laboratory Certification #: E-92587
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Missouri Inorganic Drinking Water Certification
Nevada Certification #: KS000212024-1
Oklahoma Certification #: 2023-073
Texas Certification #: T104704407-23-17
Utah Certification #: KS000212022-13

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60478810001** | **S-TMW-5** | Water | 07/10/25 13:50 | 07/11/25 07:09 |
| **60478810002** | **S-TMW-6** | Water | 07/10/25 13:02 | 07/11/25 07:09 |
| **60478810003** | **S-SCPD-DUP-1** | Water | 07/10/25 00:00 | 07/11/25 07:09 |
| **60478810004** | **S-SCPD-FB-1** | Water | 07/10/25 13:00 | 07/11/25 07:09 |



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## SAMPLE ANALYTE COUNT

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **60478810001** | **S-TMW-5** | EPA 300.0 | MLD | 2 | PASI-K |
| **60478810002** | **S-TMW-6** | EPA 300.0 | MLD | 2 | PASI-K |
| **60478810003** | **S-SCPD-DUP-1** | EPA 300.0 | MLD | 2 | PASI-K |
| **60478810004** | **S-SCPD-FB-1** | EPA 300.0 | MLD | 2 | PASI-K |

PASI-K = Pace Analytical Services - Kansas City



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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

**Sample: S-TMW-5** **Lab ID: 60478810001** Collected: 07/10/25 13:50 Received: 07/11/25 07:09 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **1.5** | mg/L | 1.0 | 0.53 | 1 | | 07/21/25 23:18 | 16887-00-6 | |
| Sulfate | **89.4** | mg/L | 10.0 | 5.5 | 10 | | 07/22/25 00:24 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

**Sample: S-TMW-6** **Lab ID: 60478810002** Collected: 07/10/25 13:02 Received: 07/11/25 07:09 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **15.0** | mg/L | 1.0 | 0.53 | 1 | | 07/22/25 01:08 | 16887-00-6 | |
| Sulfate | **46.6** | mg/L | 10.0 | 5.5 | 10 | | 07/22/25 01:20 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

**Sample: S-SCPD-DUP-1** **Lab ID: 60478810003** Collected: 07/10/25 00:00 Received: 07/11/25 07:09 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **15.2** | mg/L | 1.0 | 0.53 | 1 | | 07/22/25 01:31 | 16887-00-6 | |
| Sulfate | **53.3** | mg/L | 10.0 | 5.5 | 10 | | 07/22/25 02:04 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

**Sample: S-SCPD-FB-1** **Lab ID: 60478810004** Collected: 07/10/25 13:00 Received: 07/11/25 07:09 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Chloride | **<0.53** | mg/L | 1.0 | 0.53 | 1 | | 07/22/25 02:15 | 16887-00-6 | |
| Sulfate | **<0.55** | mg/L | 1.0 | 0.55 | 1 | | 07/22/25 02:15 | 14808-79-8 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

QC Batch: 942433
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60478810001, 60478810002, 60478810003, 60478810004

METHOD BLANK: 3735893 Matrix: Water
Associated Lab Samples: 60478810001, 60478810002, 60478810003, 60478810004

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.53 | 1.0 | 0.53 | 07/21/25 19:08 | |
| Sulfate | mg/L | <0.55 | 1.0 | 0.55 | 07/21/25 19:08 | |

LABORATORY CONTROL SAMPLE: 3735894

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.5 | 90 | 90-110 | |
| Sulfate | mg/L | 5 | 4.9 | 98 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735895 3735896

| Parameter | Units | 60478806001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 8.6 | 5 | 5 | 12.4 | 12.3 | 75 | 73 | 80-120 | 1 | 15 | M1 |
| Sulfate | mg/L | 40.0 | 5 | 5 | 45.1 | 45.0 | 102 | 101 | 80-120 | 0 | 15 | E |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735898 3735899

| Parameter | Units | 60478810001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 1.5 | 5 | 5 | 5.6 | 5.7 | 83 | 84 | 80-120 | 1 | 15 | |
| Sulfate | mg/L | 89.4 | 50 | 50 | 139 | 137 | 100 | 94 | 80-120 | 2 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735904 3735905

| Parameter | Units | 60478826001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 11.8 | 5 | 5 | 15.5 | 15.5 | 74 | 73 | 80-120 | 0 | 15 | M1 |
| Sulfate | mg/L | 68.7 | 5 | 5 | 73.7 | 73.6 | 101 | 99 | 80-120 | 0 | 15 | E |

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

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## QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

SAMPLE DUPLICATE: 3735897

| Parameter | Units | 60478806001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 8.6 | 8.6 | 0 | 15 | |
| Sulfate | mg/L | 40.0 | 39.6 | 1 | 15 | E |

SAMPLE DUPLICATE: 3735906

| Parameter | Units | 60478826001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 11.8 | 11.8 | 0 | 15 | |
| Sulfate | mg/L | 68.7 | 68.4 | 0 | 15 | E |

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

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# QUALIFIERS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

## DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60478810

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60478810001** | **S-TMW-5** | EPA 300.0 | 942433 | | |
| **60478810002** | **S-TMW-6** | EPA 300.0 | 942433 | | |
| **60478810003** | **S-SCPD-DUP-1** | EPA 300.0 | 942433 | | |
| **60478810004** | **S-SCPD-FB-1** | EPA 300.0 | 942433 | | |



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WO# : 60478810

60478810

| Pace ANALYTICAL SERVICES | DC#_Title: ENV-FRM-LENE-0009_Sample | | |
|---|---|---|---|
| | Revision: 2 | Effective Date: 01/12/2022 | Issued By: Lenexa |

Client Name: Rocksmith Geoeng

**Courier:** FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☑ Client ☐ Other ☐

**Tracking #:** _____ Pace Shipping Label Used? Yes ☐ No ☑

**Custody Seal on Cooler/Box Present:** Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

**Packing Material:** Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☑ Other ☐

**Thermometer Used:** T-301 **Type of Ice:** Wet Blue None

**Cooler Temperature (°C):** **As-read** 1.5 **Corr. Factor** 0.0 **Corrected** 1.5

**Date and initials of person examining contents:** PM 7/11/25

Temperature should be above freezing to 6°C

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | |
| Sufficient volume: | ☑Yes ☐No ☐N/A | |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | |
| Containers intact: | ☑Yes ☐No ☐N/A | |
| Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? | ☐Yes ☐No ☑N/A | |
| Filtered volume received for dissolved tests? | ☐Yes ☑No ☐N/A | |
| Sample labels match COC: Date / time / ID / analyses | ☑Yes ☐No ☐N/A | |
| Samples contain multiple phases? Matrix: WT | ☐Yes ☑No ☐N/A | |
| Containers requiring pH preservation in compliance? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** | ☐Yes ☐No ☑N/A | List sample IDs, volumes, lot #'s of preservative and the date/time added. |
| Cyanide water sample checks: Lead acetate strip turns dark? (Record only) | ☐Yes ☐No | |
| Potassium iodide test strip turns blue/purple? (Preserve) | ☐Yes ☐No | |
| Trip Blank present: | ☐Yes ☐No ☑N/A | |
| Headspace in VOA vials ( >6mm): | ☐Yes ☐No ☑N/A | |
| Samples from USDA Regulated Area: State: | ☐Yes ☐No ☑N/A | |
| Additional labels attached to 5035A / TX1005 vials in the field? | ☐Yes ☐No ☑N/A | |

**Client Notification/ Resolution:** Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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.



**Section A** Required Client Information:

| | |
|---|---|
| Company: | Rocksmith Geoengineering, LLC |
| Address: | 5233 Roanoke Drive |
| | St. Charles, MO 63304 |
| Email To: | mark.haddock@rocksmithgeo.com |
| Phone: 314-974-5678 | Fax: |
| Requested Due Date/TAT: | Standard |

**Section B** Required Project Information:

| | |
|---|---|
| Report To: | Mark Haddock |
| Copy To: | Jeffery Ingram, Grant Morey |
| Purchase Order No.: | COC #4 |
| Project Name: | Ameren SCPD - Verification Sampling |
| Project Number: | COC#4 |

**Section C** Invoice Information:

| | |
|---|---|
| Attention: | |
| Company Name: | Rocksmith |
| Address: | |
| Pace Quote Reference: | |
| Pace Project Manager: | Jamie Church |
| Pace Profile #: | 15856, line 1 |

**REGULATORY AGENCY**

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

Site Location STATE: MO

**Section D** Required Client Information

**SAMPLE ID**
(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 (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COLLECTED COMPOSITE START TIME | COLLECTED COMPOSITE END/GRAB DATE | COLLECTED COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Sulfate | Chloride | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | N | N | N | | |
| 1 | S-TMW-5 | WT | G | — | — | 7/10/25 | 13:50 | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 2 | S-TMW-6 | WT | G | — | — | 7/10/25 | 13:02 | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 3 | S-SCPD-DUP-1 | WT | G | — | — | 7/10/25 | — | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 4 | S-SCPD-FB-1 | WT | G | — | — | 7/10/25 | 13:00 | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 5 | S-SCPD-MS-1 | WT | G | — | — | 7/10/25 | 13:50 | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 6 | S-SCPD-MSD-1 | WT | G | — | — | 7/10/25 | 13:50 | | 2 | 1 | | 1 | | | | | | | X | X | | |
| 7 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 8 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 9 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 10 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 11 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 12 | | WT | G | | | | | | | | | | | | | | | | | | | |

Requested Analysis Filtered (Y/N)

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Rocksmith | 7-10-25 | 1545 | | 7/11 | 0709 | 1.5 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: John Rasmussen

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/10/25

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

Client: Rocksmith Geoeng Profile/EZ # 15856-1

Site: Notes

| COC Line Item | Matrix | VG9H | DG9H | DG9Q | VG9U | DG9U | DG9M | DG9B | BG1U | AG1H | AG1U | AG2U | AG3S | AG4U | AG5U | JGFU | WGKU | WGDU | BP1U | BP2U | BP3U | BP1N | BP3N | BP3F | BP3S | BP3B | BP3Z | WPDU | ZPLC | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WT | | | | | | | | | | | | | | | | | | | 3 | | MS/MSD | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | - | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| Glass | | | |
|---|---|---|---|
| DG9B | 40mL bisulfate clear vial | WGKU | 8oz clear soil jar |
| DG9H | 40mL HCl amber voa vial | WGFU | 4oz clear soil jar |
| DG9M | 40mL MeOH clear vial | WG2U | 2oz clear soil jar |
| DG9Q | 40mL TSP amber vial | JGFU | 4oz unpreserved amber wide |
| DG9S | 40mL H2SO4 amber vial | AG0U | 100mL unores amber glass |
| DG9T | 40mL Na Thio amber vial | AG1H | 1L HCl amber glass |
| DG9U | 40mL amber unpreserved | AG1S | 1L H2SO4 amber glass |
| VG9H | 40mL HCl clear vial | AG1T | 1L Na Thiosulfate clear/amber glass |
| VG9T | 40mL Na Thio. clear vial | AG1U | 1liter unpres amber glass |
| VG9U | 40mL unpreserved clear vial | AG2N | 500mL HNO3 amber glass |
| BG1S | 1liter H2SO4 clear glass | AG2S | 500mL H2SO4 amber glass |
| BG1U | 1liter unpres glass | AG3S | 250mL H2SO4 amber glass |
| BG3H | 250mL HCL Clear glass | AG2U | 500mL unpres amber glass |
| BG3U | 250mL Unpres Clear glass | AG3U | 250mL unpres amber glass |
| WGDU | 16oz clear soil jar | AG4U | 125mL unpres amber glass |
| | | AG5U | 100mL unpres amber glass |

| Plastic | |
|---|---|
| BP1B | 1L NAOH plastic |
| BP1N | 1L HNO3 plastic |
| BP1S | 1L H2SO4 plastic |
| BP1U | 1L unpreserved plastic |
| BP1Z | 1L NaOH, Zn Acetate |
| BP2B | 500mL NAOH plastic |
| BP2N | 500mL HNO3 plastic |
| BP2S | 500mL H2SO4 plastic |
| BP2U | 500mL unpreserved plastic |
| BP2Z | 500mL NaOH, Zn Acetate |
| BP3B | 250mL NaOH plastic |
| BP3F | 250mL HNO3 plastic - field filtered |
| BP3N | 250mL HNO3 plastic |
| BP3U | 250mL unpreserved plastic |
| BP3S | 250mL H2SO4 plastic |
| BP3Z | 250mL NaOH, Zn Acetate |
| BP4U | 125mL unpreserved plastic |
| BP4N | 125mL HNO3 plastic |
| BP4S | 125mL H2SO4 plastic |
| WPDU | 16oz unpresserved plstic |

| Misc. | |
|---|---|
| I | Wipe/Swab |
| SP5T | 120mL Coliform Na Thiosulfate |
| ZPLC | Ziploc Bag |
| AF | Air Filter |
| C | Air Cassettes |
| R | Terracore Kit |
| U | Summa Can |

| Matrix | |
|---|---|
| WT | Water |
| SL | Solid |
| NAL | Non-aqueous Liquid |
| OL | OIL |
| WP | Wipe |
| DW | Drinking Water |

Work Order Number: 6a178810

# Memorandum

**August 18, 2025**

| | | | |
|---|---|---|---|
| **To:** | Project File<br>Rocksmith Geoengineering, LLC | **Project Number:** | 23009-25 |
| **CC:** | Mark Haddock, Jeffrey Ingram | | |
| **From:** | Emy Ludwig | **Email:** | emy.ludwig@rocksmithgeo.com |
| **RE:** | **Data Validation Summary, Sioux Energy Center – SCPD – Data Package 60478810** | | |

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- None identified.

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPD- Verification
Project Number: 23009-25
Reviewer: E. Ludwig
Validation Date: 8/18/2025

Laboratory: Pace Analytical
SDG #: 60478810
Analytical Method (type and no.): EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-TMW-5, S-TMW-6, S-SCPD-SUP-1, S-SCPD-FB-1

**NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).**

| Field Information | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Sampling dates noted? | x | | | 7/10/2025 |
| b) Sampling team indicated? | x | | | JTR/JDQ/CLJ |
| c) Sample location noted? | x | | | |
| d) Sample depth indicated (Soils)? | | | x | |
| e) Sample type indicated (grab/composite)? | x | | | Grab |
| f) Field QC noted? | x | | | See Notes |
| g) Field parameters collected (note types)? | x | | | pH, Spec Cond, Turb, Temp, DO, ORP |
| h) Field Calibration within control limits? | x | | | |
| i) Notations of unacceptable field conditions/performances from field logs or field notes? | | x | | |
| j) Does the laboratory narrative indicate deficiencies? | | | x | No lab narrative. |

Note Deficiencies: _____

| Chain-of-Custody (COC) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was the COC properly completed? | x | | | |
| b) Was the COC signed by both field and laboratory personnel? | x | | | |
| c) Were samples received in good condition? | x | | | |

| General (reference QAPP or Method) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were hold times met for sample pretreatment? | x | | | |
| b) Were hold times met for sample analysis? | x | | | |
| c) Were the correct preservatives used? | x | | | |
| d) Was the correct method used? | x | | | |
| e) Were appropriate reporting limits achieved? | x | | | |
| f) Were any sample dilutions noted? | | x | | See Note |
| g) Were any matrix problems noted? | | x | | |

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

| Blanks | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were analytes detected in the method blank(s)? | ☐ | ☒ | ☐ | |
| b) Were analytes detected in the field blank(s)? | ☐ | ☒ | ☐ | |
| c) Were analytes detected in the equipment blank(s)? | ☐ | ☐ | ☒ | |
| d) Were analytes detected in the trip blank(s)? | ☐ | ☐ | ☒ | |

| Laboratory Control Sample (LCS) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a LCS analyzed once per SDG? | ☒ | ☐ | ☐ | |
| b) Were the proper analytes included in the LCS? | ☒ | ☐ | ☐ | |
| c) Was the LCS accuracy criteria met? | ☒ | ☐ | ☐ | |

| Duplicates | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were field duplicates collected (note original and duplicate sample names)? | | | | See Notes |
| | ☒ | ☐ | ☐ | |
| b) Were field dup. precision criteria met (note RPD)? | ☒ | ☒ | ☐ | |
| c) Were lab duplicates analyzed (note original and duplicate samples)? | | | | |
| | ☒ | ☐ | ☐ | See Notes |
| d) Were lab dup. precision criteria met (note RPD)? | ☒ | ☐ | ☐ | |

| Blind Standards | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a blind standard used (indicate name, | ☐ | ☐ | ☒ | |
| analytes included and concentrations)? | | | | |
| b) Was the %D within control limits? | ☐ | ☐ | ☒ | |

| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was MS accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| b) Was MSD accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| c) Were MS/MSD precision criteria met? | ☒ | ☐ | ☐ | |

**Comments/Notes:**

QAQC Samples:

S-SCPD-DUP-1 and S-SCPD-FB-1 associated with S-TMW-6

S-SCPD-MS/MSD-1 associated with S-TMW-5

Dilution

Sample S-TMW-5, S-TMW-6, and S-SCPD-DUP-1 (Sulfate) were diluted at a factor of 10. No qualifications applied.

# QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Comments/Notes:**

Matrix Spike/Matrix Spike Duplicate:

Matrix Spike (3735904) and Matrix Spike Duplicate (3735905) is associated with sample 60478826001 which is not included in this sample list. Both the MS and MSD are below the % Rec Limits with the RPD within criterion. No qualification applied.

3735895/3735896: MS and MSD recovery low for chloride, RPD within control limits. Associated with unrelated sample, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Data Qualification:**

| Sample Name | Constituent(s) | Result | Qualifier | Reason |
|---|---|---|---|---|
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Signature: Emma Ludwig Digitally signed by Emma Ludwig Date: 2025.08.22 15:06:35 -05'00'

Date: 08/18/2025

**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 12, 2025

Mark Haddock
Rocksmith Geoengineering, LLC.
2320 Creve Coeur Mill Road
Maryland Heights, MO 63043

RE: Project: AMEREN SCPD
Pace Project No.: 60483730

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on October 08, 2025. 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 - Kansas City
- Pace Analytical Services - Salina

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren



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## CERTIFICATIONS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Pace Analytical Services Kansas**
9608 Loiret Boulevard, Lenexa, KS 66219
EPA Lab Code: KS00021
Arkansas Certification #: 88-00679
Colorado Division of Oil and Public Safety
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Oklahoma Certification #: 9205
Texas Certification #: T104704407
Utah Certification #: KS0002125-15
UDSA_CA : #KS-SC-DOM-25-01

**Pace Analytical Services Salina**
528 N 9th Street, Salina, KS 67401
EPA Lab Code: KS00013
Kansas/NELAP Certification: # E-10146
Oklahoma Certification: #2405
Texas Certification: T104704246-23-15

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: AMEREN SCPD
Pace Project No.: 60483730

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60483730001** | **S-TMW-4** | Water | 10/07/25 09:20 | 10/08/25 08:20 |
| **60483730002** | **S-TMW-5** | Water | 10/06/25 13:25 | 10/08/25 08:20 |
| **60483730003** | **S-TMW-6** | Water | 10/07/25 11:35 | 10/08/25 08:20 |
| **60483730004** | **S-SCPD-DUP-1** | Water | 10/06/25 00:00 | 10/08/25 08:20 |
| **60483730005** | **S-SCPD-FB-1** | Water | 10/07/25 11:31 | 10/08/25 08:20 |
| **60483728003** | **S-UG-2** | Water | 10/07/25 13:43 | 10/08/25 08:20 |
| **60483592004** | **S-BMW-1S** | Water | 10/06/25 10:16 | 10/08/25 08:20 |
| **60483592005** | **S-BMW-3S** | Water | 10/06/25 11:57 | 10/08/25 08:20 |



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## SAMPLE ANALYTE COUNT

Project: AMEREN SCPD
Pace Project No.: 60483730

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **60483730001** | **S-TMW-4** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | AJWM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483730002** | **S-TMW-5** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | EMB | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483730003** | **S-TMW-6** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | AJWM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483730004** | **S-SCPD-DUP-1** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | EMB | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483730005** | **S-SCPD-FB-1** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | AJWM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483728003** | **S-UG-2** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | AJWM | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483592004** | **S-BMW-1S** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | EMB | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |
| **60483592005** | **S-BMW-3S** | EPA 200.7 | JGP | 7 | PASI-K |
| | | EPA 300.0 | MLL | 3 | PASI-SA |
| | | SM 2320B | EMB | 1 | PASI-K |
| | | SM 2540C | CAR | 1 | PASI-K |

PASI-K = Pace Analytical Services - Kansas City
PASI-SA = Pace Analytical Services - Salina



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# ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-TMW-4** **Lab ID: 60483730001** Collected: 10/07/25 09:20 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **115** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7440-42-8 | |
| Calcium | **131000** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7440-70-2 | M1 |
| Iron | **<8.7** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7439-89-6 | |
| Magnesium | **36000** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7439-95-4 | |
| Manganese | **790** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7439-96-5 | |
| Potassium | **7440** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7440-09-7 | |
| Sodium | **8040** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:02 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **1.7** | mg/L | 1.0 | 0.18 | 1 | | 10/29/25 10:33 | 16887-00-6 | |
| Fluoride | **0.41** | mg/L | 0.10 | 0.040 | 1 | | 10/29/25 10:33 | 16984-48-8 | |
| Sulfate | **87.9** | mg/L | 10.0 | 0.96 | 10 | | 10/29/25 16:30 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **368** | mg/L | 20.0 | 10.5 | 1 | | 10/21/25 17:32 | | L1 |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **568** | mg/L | 10.0 | 10.0 | 1 | | 10/14/25 09:13 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-TMW-5** **Lab ID: 60483730002** Collected: 10/06/25 13:25 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **91.3J** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7440-42-8 | |
| Calcium | **164000** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7440-70-2 | |
| Iron | **26.7J** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7439-89-6 | |
| Magnesium | **38400** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7439-95-4 | |
| Manganese | **614** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7439-96-5 | |
| Potassium | **6110** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7440-09-7 | |
| Sodium | **4750** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:22 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **1.8** | mg/L | 1.0 | 0.18 | 1 | | 10/28/25 11:23 | 16887-00-6 | |
| Fluoride | **0.36** | mg/L | 0.10 | 0.040 | 1 | | 10/28/25 11:23 | 16984-48-8 | |
| Sulfate | **231** | mg/L | 20.0 | 1.9 | 20 | | 10/28/25 17:54 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **318** | mg/L | 20.0 | 10.5 | 1 | | 10/20/25 15:59 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **682** | mg/L | 10.0 | 10.0 | 1 | | 10/13/25 13:45 | | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-TMW-6** **Lab ID: 60483730003** Collected: 10/07/25 11:35 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **111** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7440-42-8 | |
| Calcium | **139000** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7440-70-2 | |
| Iron | **30.3J** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7439-89-6 | |
| Magnesium | **28600** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7439-95-4 | |
| Manganese | **749** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7439-96-5 | |
| Potassium | **29000** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7440-09-7 | |
| Sodium | **5020** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:23 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **4.3** | mg/L | 1.0 | 0.18 | 1 | | 10/29/25 11:35 | 16887-00-6 | |
| Fluoride | **0.27** | mg/L | 0.10 | 0.040 | 1 | | 10/29/25 11:35 | 16984-48-8 | |
| Sulfate | **62.7** | mg/L | 5.0 | 0.48 | 5 | | 10/29/25 17:07 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **424** | mg/L | 20.0 | 10.5 | 1 | | 10/21/25 17:32 | | L1 |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **594** | mg/L | 10.0 | 10.0 | 1 | | 10/14/25 09:13 | | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-SCPD-DUP-1** **Lab ID: 60483730004** Collected: 10/06/25 00:00 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **86.6J** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7440-42-8 | |
| Calcium | **159000** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7440-70-2 | |
| Iron | **30.1J** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7439-89-6 | |
| Magnesium | **37500** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7439-95-4 | |
| Manganese | **569** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7439-96-5 | |
| Potassium | **5880** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7440-09-7 | |
| Sodium | **4540** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:25 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **2.7** | mg/L | 1.0 | 0.18 | 1 | | 10/28/25 11:35 | 16887-00-6 | |
| Fluoride | **0.36** | mg/L | 0.10 | 0.040 | 1 | | 10/28/25 11:35 | 16984-48-8 | |
| Sulfate | **231** | mg/L | 20.0 | 1.9 | 20 | | 10/28/25 18:06 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **318** | mg/L | 20.0 | 10.5 | 1 | | 10/20/25 15:59 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **659** | mg/L | 13.3 | 13.3 | 1 | | 10/13/25 13:46 | | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-SCPD-FB-1** **Lab ID: 60483730005** Collected: 10/07/25 11:31 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **<7.3** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7440-42-8 | |
| Calcium | **<12.1** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7440-70-2 | |
| Iron | **<8.7** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7439-89-6 | |
| Magnesium | **<16.0** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7439-95-4 | |
| Manganese | **<0.52** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7439-96-5 | |
| Potassium | **<66.6** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7440-09-7 | |
| Sodium | **<46.9** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:27 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **<0.18** | mg/L | 1.0 | 0.18 | 1 | | 10/29/25 11:47 | 16887-00-6 | |
| Fluoride | **<0.040** | mg/L | 0.10 | 0.040 | 1 | | 10/29/25 11:47 | 16984-48-8 | |
| Sulfate | **<0.096** | mg/L | 1.0 | 0.096 | 1 | | 10/29/25 11:47 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **<10.5** | mg/L | 20.0 | 10.5 | 1 | | 10/21/25 17:32 | | L1 |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **<5.0** | mg/L | 5.0 | 5.0 | 1 | | 10/14/25 09:13 | | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-UG-2** **Lab ID: 60483728003** Collected: 10/07/25 13:43 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **94.8J** | ug/L | 100 | 7.3 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7440-42-8 | |
| Calcium | **102000** | ug/L | 200 | 12.1 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7440-70-2 | |
| Iron | **47.3J** | ug/L | 50.0 | 8.7 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7439-89-6 | |
| Magnesium | **21600** | ug/L | 50.0 | 16.0 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7439-95-4 | |
| Manganese | **56.3** | ug/L | 5.0 | 0.52 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7439-96-5 | |
| Potassium | **4160** | ug/L | 500 | 66.6 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7440-09-7 | |
| Sodium | **29500** | ug/L | 500 | 46.9 | 1 | 10/09/25 14:57 | 10/20/25 11:20 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **37.3** | mg/L | 2.0 | 0.36 | 2 | | 10/28/25 20:46 | 16887-00-6 | |
| Fluoride | **0.23** | mg/L | 0.10 | 0.040 | 1 | | 10/28/25 14:12 | 16984-48-8 | |
| Sulfate | **22.8** | mg/L | 2.0 | 0.19 | 2 | | 10/28/25 20:46 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **326** | mg/L | 20.0 | 10.5 | 1 | | 10/21/25 17:34 | | L1 |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **428** | mg/L | 10.0 | 10.0 | 1 | | 10/14/25 09:10 | | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-BMW-1S** **Lab ID: 60483592004** Collected: 10/06/25 10:16 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **68.5J** | ug/L | 100 | 33.2 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7440-42-8 | |
| Calcium | **168000** | ug/L | 200 | 45.3 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7440-70-2 | |
| Iron | **35.5J** | ug/L | 50.0 | 15.4 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7439-89-6 | |
| Magnesium | **34000** | ug/L | 50.0 | 21.1 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7439-95-4 | |
| Manganese | **825** | ug/L | 5.0 | 0.42 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7439-96-5 | |
| Potassium | **516** | ug/L | 500 | 45.2 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7440-09-7 | B |
| Sodium | **5400** | ug/L | 500 | 31.8 | 1 | 10/08/25 15:11 | 10/17/25 15:59 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **11.4** | mg/L | 1.0 | 0.18 | 1 | | 10/26/25 10:20 | 16887-00-6 | |
| Fluoride | **0.27** | mg/L | 0.10 | 0.040 | 1 | | 10/26/25 10:20 | 16984-48-8 | |
| Sulfate | **39.2** | mg/L | 5.0 | 0.48 | 5 | | 10/26/25 17:12 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **514** | mg/L | 20.0 | 10.5 | 1 | | 10/20/25 15:57 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **596** | mg/L | 13.3 | 13.3 | 1 | | 10/09/25 15:29 | | |

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# ANALYTICAL RESULTS

Project: AMEREN SCPD
Pace Project No.: 60483730

**Sample: S-BMW-3S** **Lab ID: 60483592005** Collected: 10/06/25 11:57 Received: 10/08/25 08:20 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Boron | **62.1J** | ug/L | 100 | 33.2 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7440-42-8 | |
| Calcium | **129000** | ug/L | 200 | 45.3 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7440-70-2 | |
| Iron | **<15.4** | ug/L | 50.0 | 15.4 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7439-89-6 | |
| Magnesium | **22900** | ug/L | 50.0 | 21.1 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7439-95-4 | |
| Manganese | **423** | ug/L | 5.0 | 0.42 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7439-96-5 | |
| Potassium | **516** | ug/L | 500 | 45.2 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7440-09-7 | B |
| Sodium | **6200** | ug/L | 500 | 31.8 | 1 | 10/08/25 15:11 | 10/17/25 15:22 | 7440-23-5 | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Salina | | | | | | | | |
| Chloride | **9.6** | mg/L | 1.0 | 0.18 | 1 | | 10/26/25 10:32 | 16887-00-6 | |
| Fluoride | **0.30** | mg/L | 0.10 | 0.040 | 1 | | 10/26/25 10:32 | 16984-48-8 | |
| Sulfate | **35.6** | mg/L | 2.0 | 0.19 | 2 | | 10/26/25 17:25 | 14808-79-8 | |
| **2320B Alkalinity** | Analytical Method: SM 2320B | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Alkalinity, Total as CaCO3 | **380** | mg/L | 20.0 | 10.5 | 1 | | 10/20/25 15:57 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C | | | | | | | | |
| | Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **477** | mg/L | 10.0 | 10.0 | 1 | | 10/09/25 15:30 | | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 950940
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483592004, 60483592005

METHOD BLANK: 3768607 Matrix: Water
Associated Lab Samples: 60483592004, 60483592005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | <33.2 | 100 | 33.2 | 10/17/25 15:00 | |
| Calcium | ug/L | <45.3 | 200 | 45.3 | 10/17/25 15:00 | |
| Iron | ug/L | <15.4 | 50.0 | 15.4 | 10/17/25 15:00 | |
| Magnesium | ug/L | <21.1 | 50.0 | 21.1 | 10/17/25 15:00 | |
| Manganese | ug/L | <0.42 | 5.0 | 0.42 | 10/17/25 15:00 | |
| Potassium | ug/L | 60.5J | 500 | 45.2 | 10/17/25 15:00 | |
| Sodium | ug/L | <31.8 | 500 | 31.8 | 10/17/25 15:00 | |

LABORATORY CONTROL SAMPLE: 3768608

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | 1000 | 985 | 98 | 85-115 | |
| Calcium | ug/L | 10000 | 10300 | 103 | 85-115 | |
| Iron | ug/L | 10000 | 10300 | 103 | 85-115 | |
| Magnesium | ug/L | 10000 | 10000 | 100 | 85-115 | |
| Manganese | ug/L | 1000 | 1020 | 102 | 85-115 | |
| Potassium | ug/L | 10000 | 10200 | 102 | 85-115 | |
| Sodium | ug/L | 10000 | 10100 | 101 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3768609 3768610

| Parameter | Units | 60483592010 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 7210 | 1000 | 1000 | 8410 | 8400 | 119 | 119 | 70-130 | 0 | 20 | |
| Calcium | ug/L | 142000 | 10000 | 10000 | 155000 | 155000 | 131 | 130 | 70-130 | 0 | 20 | M1 |
| Iron | ug/L | 9710 | 10000 | 10000 | 20100 | 20100 | 104 | 104 | 70-130 | 0 | 20 | |
| Magnesium | ug/L | 35900 | 10000 | 10000 | 46700 | 46700 | 108 | 108 | 70-130 | 0 | 20 | |
| Manganese | ug/L | 1110 | 1000 | 1000 | 2150 | 2150 | 104 | 104 | 70-130 | 0 | 20 | |
| Potassium | ug/L | 5170 | 10000 | 10000 | 15700 | 15500 | 105 | 104 | 70-130 | 1 | 20 | |
| Sodium | ug/L | 33700 | 10000 | 10000 | 44700 | 44700 | 110 | 110 | 70-130 | 0 | 20 | |

MATRIX SPIKE SAMPLE: 3768611

| Parameter | Units | 60483592009 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Boron | ug/L | 5610 | 1000 | 6520 | 92 | 70-130 | |
| Calcium | ug/L | 112000 | 10000 | 121000 | 83 | 70-130 | |

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

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## QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

MATRIX SPIKE SAMPLE: 3768611

| Parameter | Units | 60483592009 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Iron | ug/L | 9370 | 10000 | 19700 | 103 | 70-130 | |
| Magnesium | ug/L | 24000 | 10000 | 33500 | 94 | 70-130 | |
| Manganese | ug/L | 833 | 1000 | 1840 | 101 | 70-130 | |
| Potassium | ug/L | 2260 | 10000 | 12300 | 101 | 70-130 | |
| Sodium | ug/L | 29300 | 10000 | 38900 | 96 | 70-130 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 951101
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483728003, 60483730001, 60483730002, 60483730003, 60483730004, 60483730005

METHOD BLANK: 3769392 Matrix: Water
Associated Lab Samples: 60483728003, 60483730001, 60483730002, 60483730003, 60483730004, 60483730005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | <7.3 | 100 | 7.3 | 10/20/25 10:59 | |
| Calcium | ug/L | <12.1 | 200 | 12.1 | 10/20/25 10:59 | |
| Iron | ug/L | <8.7 | 50.0 | 8.7 | 10/20/25 10:59 | |
| Magnesium | ug/L | <16.0 | 50.0 | 16.0 | 10/20/25 10:59 | |
| Manganese | ug/L | <0.52 | 5.0 | 0.52 | 10/20/25 10:59 | |
| Potassium | ug/L | <66.6 | 500 | 66.6 | 10/20/25 10:59 | |
| Sodium | ug/L | <46.9 | 500 | 46.9 | 10/20/25 10:59 | |

LABORATORY CONTROL SAMPLE: 3769393

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Boron | ug/L | 1000 | 1040 | 104 | 85-115 | |
| Calcium | ug/L | 10000 | 11000 | 110 | 85-115 | |
| Iron | ug/L | 10000 | 11200 | 112 | 85-115 | |
| Magnesium | ug/L | 10000 | 10600 | 106 | 85-115 | |
| Manganese | ug/L | 1000 | 1100 | 110 | 85-115 | |
| Potassium | ug/L | 10000 | 10500 | 105 | 85-115 | |
| Sodium | ug/L | 10000 | 10700 | 107 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3769394 3769395

| Parameter | Units | 60483730001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 115 | 1000 | 1000 | 1140 | 1120 | 103 | 101 | 70-130 | 2 | 20 | |
| Calcium | ug/L | 131000 | 10000 | 10000 | 141000 | 133000 | 95 | 15 | 70-130 | 6 | 20 | M1 |
| Iron | ug/L | <8.7 | 10000 | 10000 | 10700 | 10400 | 107 | 104 | 70-130 | 3 | 20 | |
| Magnesium | ug/L | 36000 | 10000 | 10000 | 45800 | 43400 | 98 | 74 | 70-130 | 5 | 20 | |
| Manganese | ug/L | 790 | 1000 | 1000 | 1790 | 1750 | 100 | 96 | 70-130 | 2 | 20 | |
| Potassium | ug/L | 7440 | 10000 | 10000 | 18000 | 17400 | 106 | 100 | 70-130 | 3 | 20 | |
| Sodium | ug/L | 8040 | 10000 | 10000 | 18600 | 17700 | 105 | 97 | 70-130 | 5 | 20 | |

MATRIX SPIKE SAMPLE: 3769396

| Parameter | Units | 60483730005 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Boron | ug/L | <7.3 | 1000 | 1010 | 101 | 70-130 | |
| Calcium | ug/L | <12.1 | 10000 | 10300 | 103 | 70-130 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

MATRIX SPIKE SAMPLE: 3769396

| Parameter | Units | 60483730005 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Iron | ug/L | <8.7 | 10000 | 10700 | 107 | 70-130 | |
| Magnesium | ug/L | <16.0 | 10000 | 9920 | 99 | 70-130 | |
| Manganese | ug/L | <0.52 | 1000 | 1080 | 108 | 70-130 | |
| Potassium | ug/L | <66.6 | 10000 | 10100 | 101 | 70-130 | |
| Sodium | ug/L | <46.9 | 10000 | 10200 | 102 | 70-130 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 952778
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Salina
Associated Lab Samples: 60483592004, 60483592005

METHOD BLANK: 3776285 Matrix: Water
Associated Lab Samples: 60483592004, 60483592005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.18 | 1.0 | 0.18 | 10/26/25 09:18 | |
| Fluoride | mg/L | <0.040 | 0.10 | 0.040 | 10/26/25 09:18 | |
| Sulfate | mg/L | <0.096 | 1.0 | 0.096 | 10/26/25 09:18 | |

LABORATORY CONTROL SAMPLE: 3776286

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.7 | 93 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.5 | 99 | 90-110 | |
| Sulfate | mg/L | 5 | 4.9 | 97 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3776287 3776288

| Parameter | Units | 60483592010 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 35.9 | 25 | 25 | 60.6 | 58.6 | 99 | 91 | 80-120 | 3 | 15 | |
| Fluoride | mg/L | 0.31 | 2.5 | 2.5 | 2.7 | 2.7 | 96 | 95 | 80-120 | 1 | 15 | |
| Sulfate | mg/L | 243 | 250 | 250 | 473 | 469 | 92 | 90 | 80-120 | 1 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3776289 3776290

| Parameter | Units | 60483592021 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 14.6 | 5 | 5 | 19.4 | 19.3 | 95 | 93 | 80-120 | 0 | 15 | |
| Fluoride | mg/L | 0.24 | 2.5 | 2.5 | 2.7 | 2.7 | 99 | 97 | 80-120 | 1 | 15 | |
| Sulfate | mg/L | 60.2 | 50 | 50 | 111 | 109 | 102 | 97 | 80-120 | 2 | 15 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 953128
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Salina
Associated Lab Samples: 60483728003, 60483730002, 60483730004

METHOD BLANK: 3777712 Matrix: Water
Associated Lab Samples: 60483728003, 60483730002, 60483730004

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.18 | 1.0 | 0.18 | 10/28/25 08:56 | |
| Fluoride | mg/L | <0.040 | 0.10 | 0.040 | 10/28/25 08:56 | |
| Sulfate | mg/L | <0.096 | 1.0 | 0.096 | 10/28/25 08:56 | |

LABORATORY CONTROL SAMPLE: 3777713

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.9 | 98 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.7 | 108 | 90-110 | |
| Sulfate | mg/L | 5 | 5.1 | 102 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3777714 3777715

| Parameter | Units | 60483723002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 16.4 | 10 | 10 | 25.6 | 25.8 | 91 | 94 | 80-120 | 1 | 15 | |
| Fluoride | mg/L | 0.30 | 2.5 | 2.5 | 2.8 | 2.8 | 101 | 99 | 80-120 | 2 | 15 | |
| Sulfate | mg/L | 44.9 | 25 | 25 | 69.1 | 69.8 | 97 | 100 | 80-120 | 1 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3777716 3777717

| Parameter | Units | 60484583002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 8.8 | 5 | 5 | 12.5 | 12.5 | 75 | 75 | 80-120 | 0 | 15 | M1 |
| Fluoride | mg/L | 0.16 | 2.5 | 2.5 | 2.4 | 2.6 | 88 | 98 | 80-120 | 11 | 15 | |
| Sulfate | mg/L | 110 | 50 | 50 | 162 | 159 | 104 | 99 | 80-120 | 2 | 15 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 953362
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Salina
Associated Lab Samples: 60483730001, 60483730003, 60483730005

METHOD BLANK: 3778553 Matrix: Water
Associated Lab Samples: 60483730001, 60483730003, 60483730005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | <0.18 | 1.0 | 0.18 | 10/29/25 10:09 | |
| Fluoride | mg/L | <0.040 | 0.10 | 0.040 | 10/29/25 10:09 | |
| Sulfate | mg/L | <0.096 | 1.0 | 0.096 | 10/29/25 10:09 | |

LABORATORY CONTROL SAMPLE: 3778554

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 5 | 4.7 | 94 | 90-110 | |
| Fluoride | mg/L | 2.5 | 2.6 | 104 | 90-110 | |
| Sulfate | mg/L | 5 | 4.9 | 99 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3778555 3778556

| Parameter | Units | 60483730001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 1.7 | 5 | 5 | 6.7 | 6.7 | 101 | 100 | 80-120 | 1 | 15 | |
| Fluoride | mg/L | 0.41 | 2.5 | 2.5 | 2.9 | 2.9 | 100 | 99 | 80-120 | 1 | 15 | |
| Sulfate | mg/L | 87.9 | 50 | 50 | 140 | 139 | 104 | 103 | 80-120 | 0 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3778557 3778558

| Parameter | Units | 60483727006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 206 | 100 | 100 | 308 | 309 | 102 | 103 | 80-120 | 0 | 15 | |
| Fluoride | mg/L | 0.24 | 2.5 | 2.5 | 2.4 | 2.3 | 85 | 84 | 80-120 | 1 | 15 | |
| Sulfate | mg/L | 543 | 500 | 500 | 1050 | 1040 | 100 | 99 | 80-120 | 0 | 15 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 952195
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483592004, 60483592005, 60483730002, 60483730004

METHOD BLANK: 3773924 Matrix: Water
Associated Lab Samples: 60483592004, 60483592005, 60483730002, 60483730004

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | 20.0 | 10.5 | 10/20/25 15:57 | |

LABORATORY CONTROL SAMPLE: 3773925

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 500 | 486 | 97 | 90-110 | |

SAMPLE DUPLICATE: 3773926

| Parameter | Units | 60483723002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 362 | 368 | 2 | 10 | |

SAMPLE DUPLICATE: 3773927

| Parameter | Units | 60483723004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | <10.5 | | 10 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 952197
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483728003, 60483730001, 60483730003, 60483730005

METHOD BLANK: 3773930 Matrix: Water
Associated Lab Samples: 60483728003, 60483730001, 60483730003, 60483730005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <10.5 | 20.0 | 10.5 | 10/21/25 17:31 | |

LABORATORY CONTROL SAMPLE: 3773931

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 500 | 492 | 98 | 90-110 | L1 |

SAMPLE DUPLICATE: 3773932

| Parameter | Units | 60483730001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 368 | 368 | 0 | 10 | |

SAMPLE DUPLICATE: 3773933

| Parameter | Units | 60483592010 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 306 | 376 | 21 | 10 | D6 |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 951058
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483592004, 60483592005

METHOD BLANK: 3769111 Matrix: Water
Associated Lab Samples: 60483592004, 60483592005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 10/09/25 15:28 | |

LABORATORY CONTROL SAMPLE: 3769112

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 1000 | 100 | 80-120 | |

SAMPLE DUPLICATE: 3769113

| Parameter | Units | 60483638001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 12200 | 10600 | 15 | 10 | D6 |

SAMPLE DUPLICATE: 3769114

| Parameter | Units | 60483592004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 596 | 601 | 1 | 10 | |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 951335
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483730002, 60483730004

METHOD BLANK: 3770459 Matrix: Water
Associated Lab Samples: 60483730002, 60483730004

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 10/13/25 13:43 | |

LABORATORY CONTROL SAMPLE: 3770460

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 1010 | 101 | 80-120 | |

SAMPLE DUPLICATE: 3770461

| Parameter | Units | 60483723002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 463 | 466 | 1 | 10 | |

SAMPLE DUPLICATE: 3770462

| Parameter | Units | 60483888002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1010 | 8800 | 159 | 10 | D6 |

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## QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 951459
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483728003

METHOD BLANK: 3770733 Matrix: Water
Associated Lab Samples: 60483728003

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 10/14/25 09:10 | |

LABORATORY CONTROL SAMPLE: 3770734

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 997 | 100 | 80-120 | |

SAMPLE DUPLICATE: 3770735

| Parameter | Units | 60483728001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 804 | 803 | 0 | 10 | |

SAMPLE DUPLICATE: 3770736

| Parameter | Units | 60483930008 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 392 | 393 | 0 | 10 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD
Pace Project No.: 60483730

QC Batch: 951460
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60483730001, 60483730003, 60483730005

METHOD BLANK: 3770737 Matrix: Water
Associated Lab Samples: 60483730001, 60483730003, 60483730005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 10/14/25 09:13 | |

LABORATORY CONTROL SAMPLE: 3770738

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 996 | 100 | 80-120 | |

SAMPLE DUPLICATE: 3770739

| Parameter | Units | 60483730001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 568 | 558 | 2 | 10 | |

SAMPLE DUPLICATE: 3770740

| Parameter | Units | 60483727006 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1560 | 1560 | 0 | 10 | |

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# QUALIFIERS

Project: AMEREN SCPD
Pace Project No.: 60483730

## DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| B | Analyte was detected in the associated method blank. |
| D6 | The precision between the sample and sample duplicate exceeded laboratory control limits. |
| L1 | Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |



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# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPD
Pace Project No.: 60483730

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60483592004** | **S-BMW-1S** | EPA 200.7 | 950940 | EPA 200.7 | 950995 |
| **60483592005** | **S-BMW-3S** | EPA 200.7 | 950940 | EPA 200.7 | 950995 |
| **60483728003** | **S-UG-2** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483730001** | **S-TMW-4** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483730002** | **S-TMW-5** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483730003** | **S-TMW-6** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483730004** | **S-SCPD-DUP-1** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483730005** | **S-SCPD-FB-1** | EPA 200.7 | 951101 | EPA 200.7 | 951114 |
| **60483592004** | **S-BMW-1S** | EPA 300.0 | 952778 | | |
| **60483592005** | **S-BMW-3S** | EPA 300.0 | 952778 | | |
| **60483728003** | **S-UG-2** | EPA 300.0 | 953128 | | |
| **60483730001** | **S-TMW-4** | EPA 300.0 | 953362 | | |
| **60483730002** | **S-TMW-5** | EPA 300.0 | 953128 | | |
| **60483730003** | **S-TMW-6** | EPA 300.0 | 953362 | | |
| **60483730004** | **S-SCPD-DUP-1** | EPA 300.0 | 953128 | | |
| **60483730005** | **S-SCPD-FB-1** | EPA 300.0 | 953362 | | |
| **60483592004** | **S-BMW-1S** | SM 2320B | 952195 | | |
| **60483592005** | **S-BMW-3S** | SM 2320B | 952195 | | |
| **60483728003** | **S-UG-2** | SM 2320B | 952197 | | |
| **60483730001** | **S-TMW-4** | SM 2320B | 952197 | | |
| **60483730002** | **S-TMW-5** | SM 2320B | 952195 | | |
| **60483730003** | **S-TMW-6** | SM 2320B | 952197 | | |
| **60483730004** | **S-SCPD-DUP-1** | SM 2320B | 952195 | | |
| **60483730005** | **S-SCPD-FB-1** | SM 2320B | 952197 | | |
| **60483592004** | **S-BMW-1S** | SM 2540C | 951058 | | |
| **60483592005** | **S-BMW-3S** | SM 2540C | 951058 | | |
| **60483728003** | **S-UG-2** | SM 2540C | 951459 | | |
| **60483730001** | **S-TMW-4** | SM 2540C | 951460 | | |
| **60483730002** | **S-TMW-5** | SM 2540C | 951335 | | |
| **60483730003** | **S-TMW-6** | SM 2540C | 951460 | | |
| **60483730004** | **S-SCPD-DUP-1** | SM 2540C | 951335 | | |
| **60483730005** | **S-SCPD-FB-1** | SM 2540C | 951460 | | |



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without the written consent of Pace Analytical Services, LLC.

WO#: 60483730

60483730

| Pace ANALYTICAL SERVICES | DC#_Title: ENV-FRM-LENE-0009_Sample C | | |
|---|---|---|---|
| | Revision: 3 | Effective Date: 09/22/2025 | Issued By: Lenexa |

Client Name: Rocksmith Geoeng

**Courier:** FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☑ Client ☐ Other ☐

**Tracking #:** _____ Pace Shipping Label Used? Yes ☐ No ☑

**Custody Seal on Cooler/Box Present:** Yes ☑ No ☐ Seals intact: Yes ☑ No ☐ Cooling process has begun ☐

**Packing Material:** Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☑ Other ☐

**Thermometer Used:** T-361 **Type of Ice:** Wet Blue None

**Cooler Temperature (°C):** As-read 1.1/1.3 Corr. Factor 2.0 Corrected 1.1/1.3 1.3

Temperature should be above freezing to 6°C

**Date and initials of person examining contents:** JW 10/6/25

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | |
| Sufficient volume: | ☑Yes ☐No ☐N/A | |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | |
| Containers intact: | ☑Yes ☐No ☐N/A | |
| Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? | ☐Yes ☐No ☑N/A | |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | |
| Sample labels match COC: Date / time / ID / analyses | ☑Yes ☐No ☐N/A | |
| Samples contain multiple phases? Matrix: WT | ☐Yes ☑No ☐N/A | |
| Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, Radium) LOT#: 96888 | ☑Yes ☐No ☐N/A | List sample IDs, volumes, lot #'s of preservative and the date/time added. |
| Cyanide water sample checks: Lead acetate strip turns dark? (Record only) | ☐Yes ☐No | |
| Potassium iodide test strip turns blue/purple? (Preserve) | ☐Yes ☐No | |
| Trip Blank present: | ☐Yes ☐No ☑N/A | |
| Headspace in VOA vials ( >6mm): | ☐Yes ☐No ☑N/A | |
| Samples from USDA Regulated Area: State: | ☐Yes ☐No ☑N/A | |
| Additional labels attached to 5035A / TX1005 vials in the field? | ☐Yes ☐No ☑N/A | |

**Client Notification/ Resolution:** Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace® Location Requested (City/State):
Pace Analytical Kansas
9608 Loiret Blvd., Lenexa, KS 66219

# CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

| | | | |
|---|---|---|---|
| Company Name: | Rocksmith Geoengineering, LLC. | Contact/Report To: | Mark Haddock |
| Street Address: | 2320 Creve Coeur Mill Road<br>Maryland Heights, MO 63043 | Phone #: | 314-974-6578 |
| | | E-Mail: | mark.haddock@rocksmithgeo.com |
| | | Cc E-Mail: | |
| Customer Project #: | | | |
| Project Name: | AMEREN SCPD | Invoice To: | Mark Haddock |
| | | Invoice E-Mail: | mark.haddock@rocksmithgeo.com |
| Site Collection Info/Facility ID (as applicable): | | Purchase Order # (if applicable): | |
| | | Quote #: | |
| Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET | | County / State origin of sample(s): | Missouri |

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

Rush (Pre-approval required):
[ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

Field Filtered (if applicable): [ ] Yes [ ] No
Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Composite Start Date | Composite Start Time | Collected or Composite End Date | Collected or Composite End Time | # Cont. | Res. Chlorine Results | Res. Chlorine Units | App III and Cat/An Metals* | Cl/F/SO4/TDS/Alkalinity | Sample Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-TMW-4 | WT | G | | | 10/7/25 | 0920 | 2 | | | ✓ | ✓ | |
| S-TMW-5 | WT | G | | | 10/6/25 | 1325 | 2 | | | ✓ | ✓ | |
| S-TMW-6 | WT | G | | | 10/7/25 | 1135 | 2 | | | ✓ | ✓ | |
| S-SCPD-DUP-1 | WT | G | | | 10/6/25 | — | 2 | | | ✓ | ✓ | |
| S-SCPD-FB-1 | WT | G | | | 10/7/25 | 1131 | 2 | | | ✓ | ✓ | |
| S-SCPD-MS-1 | WT | G | | | 10/7/25 | 0920 | 2 | | | ✓ | ✓ | Taken @ TMW-4 |
| S-SCPD-MSD-1 | WT | G | | | 10/7/25 | 0920 | 2 | | | ✓ | ✓ | |
| S-UG-2 | WT | G | | | 10/7/25 | 1343 | 2 | | | ✓ | ✓ | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Specify Container Size **
Identify Container Preservative Type***
Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3303605

Preservation non-conformance identified for sample.

Additional Instructions from Pace®:
*** - App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B**

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

| # Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C) | Corrected Temp. (°C) | On Ice: |
|---|---|---|---|---|---|
| 3 | T301 | 0.0 | 1.3 / 1.3 | 1.3 / 1.3 | |

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| Rocksmith | 10/7/25 1540 | | 10/8/25 0820 |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |

Tracking Number:

Delivered by: [ ] In- Person [ ] Courier
[ ] FedEx [ ] UPS [ ] Other

Page: 1 of 1



Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Client: Locksmith Geweng  Profile/EZ #: 3307605

Site:  Notes

| COC Line Item | Matrix | VG9H | DG9H | DG9Q | VG9U | DG9U | DG9M | DG9B | BG1U | AG1H | AG1U | AG2U | AG3S | AG4U | AG5U | JGFU | WGKU | WGDU | BP1U | BP2U | BP3U | BP1N | BP3N | BP3F | BP3S | BP3B | BP3Z | WPDU | ZPLC | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WT | | | | | | | | | | (MS/MSD) | | | | | | | | 3 | | | | 3 | | | | | | | | | |
| 2 | ↓ | | | | | | | | | | | | | | | | | | - | | | | - | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | ↓ | | | | ↓ | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | DO not Log | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| Glass | | | |
|---|---|---|---|
| DG9B | 40mL bisulfate clear vial | WGKU | 8oz clear soil jar |
| DG9H | 40mL HCl amber voa vial | WGFU | 4oz clear soil jar |
| DG9M | 40mL MeOH clear vial | WG2U | 2oz clear soil jar |
| DG9Q | 40mL TSP amber vial | JGFU | 4oz unpreserved amber wide |
| DG9S | 40mL H2SO4 amber vial | AG0U | 100mL unores amber glass |
| DG9T | 40mL Na Thio amber vial | AG1H | 1L HCl amber glass |
| DG9U | 40mL amber unpreserved | AG1S | 1L H2SO4 amber glass |
| VG9H | 40mL HCl clear vial | AG1T | 1L Na Thiosulfate clear/amber glass |
| VG9T | 40mL Na Thio. clear vial | AG1U | 1liter unpres amber glass |
| VG9U | 40mL unpreserved clear vial | AG2N | 500mL HNO3 amber glass |
| BG1S | 1liter H2SO4 clear glass | AG2S | 500mL H2SO4 amber glass |
| BG1U | 1liter unpres glass | AG3S | 250mL H2SO4 amber glass |
| BG3H | 250mL HCL Clear glass | AG2U | 500mL unpres amber glass |
| BG3U | 250mL Unpres Clear glass | AG3U | 250mL unpres amber glass |
| WGDU | 16oz clear soil jar | AG4U | 125mL unpres amber glass |
| | | AG5U | 100mL unpres amber glass |

| Plastic | |
|---|---|
| BP1B | 1L NAOH plastic |
| BP1N | 1L HNO3 plastic |
| BP1S | 1L H2SO4 plastic |
| BP1U | 1L unpreserved plastic |
| BP1Z | 1L NaOH, Zn Acetate |
| BP2B | 500mL NAOH plastic |
| BP2N | 500mL HNO3 plastic |
| BP2S | 500mL H2SO4 plastic |
| BP2U | 500mL unpreserved plastic |
| BP2Z | 500mL NaOH, Zn Acetate |
| BP3B | 250mL NaOH plastic |
| BP3F | 250mL HNO3 plastic - field filtered |
| BP3N | 250mL HNO3 plastic |
| BP3U | 250mL unpreserved plastic |
| BP3S | 250mL H2SO4 plastic |
| BP3Z | 250mL NaOH, Zn Acetate |
| BP4U | 125mL unpreserved plastic |
| BP4N | 125mL HNO3 plastic |
| BP4S | 125mL H2SO4 plastic |
| WPDU | 16oz unpresserved plstic |

| Misc. | |
|---|---|
| I | Wipe/Swab |
| SP5T | 120mL Coliform Na Thiosulfate |
| ZPLC | Ziploc Bag |
| AF | Air Filter |
| C | Air Cassettes |
| R | Terracore Kit |
| U | Summa Can |

| Matrix | |
|---|---|
| WT | Water |
| SL | Solid |
| NAL | Non-aqueous Liquid |
| OL | OIL |
| WP | Wipe |
| DW | Drinking Water |

Work Order Number: 60483730

# Memorandum

**November 18, 2025**

| | | | |
|---|---|---|---|
| **To:** | Project File<br>Rocksmith Geoengineering, LLC | **Project Number:** | 23009-25 |
| **CC:** | Mark Haddock, Jeffrey Ingram | | |
| **From:** | Jack Rasmussen | **Email:** | Jack.Rasmussen@rocksmithgeo.com |
| **RE:** | **Data Validation Summary, Sioux Energy Center – SCPD – Data Package 60483730** | | |

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPD
Project Number: 23009-25
Reviewer: J. Rasmussen
Validation Date: 11/18/2025

Laboratory: Pace Analytical
SDG #: 60483730
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM 2320B (Alkalinity); SM 2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-UG-2, S-BMW-1S, S-BMW-3S

**NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).**

| Field Information | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Sampling dates noted? | x | | | 10/06/2025 - 10/07/2025 |
| b) Sampling team indicated? | x | | | JTR/JDQ/LES |
| c) Sample location noted? | x | | | |
| d) Sample depth indicated (Soils)? | | | x | |
| e) Sample type indicated (grab/composite)? | x | | | Grab |
| f) Field QC noted? | x | | | See Notes |
| g) Field parameters collected (note types)? | x | | | pH, Spec Cond, Turb, Temp, DO, ORP |
| h) Field Calibration within control limits? | x | | | |
| i) Notations of unacceptable field conditions/performances from field logs or field notes? | | x | | |
| j) Does the laboratory narrative indicate deficiencies? | | | x | No lab narrative. |

Note Deficiencies: _____

| Chain-of-Custody (COC) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was the COC properly completed? | x | | | |
| b) Was the COC signed by both field and laboratory personnel? | x | | | |
| c) Were samples received in good condition? | x | | | |

| General (reference QAPP or Method) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were hold times met for sample pretreatment? | x | | | |
| b) Were hold times met for sample analysis? | x | | | |
| c) Were the correct preservatives used? | x | | | |
| d) Was the correct method used? | x | | | |
| e) Were appropriate reporting limits achieved? | x | | | |
| f) Were any sample dilutions noted? | x | | | See Notes |
| g) Were any matrix problems noted? | | x | | |

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

| Blanks | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were analytes detected in the method blank(s)? | x | | | See Notes |
| b) Were analytes detected in the field blank(s)? | x | | | See Notes |
| c) Were analytes detected in the equipment blank(s)? | | | x | |
| d) Were analytes detected in the trip blank(s)? | | | x | |

| Laboratory Control Sample (LCS) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a LCS analyzed once per SDG? | x | | | |
| b) Were the proper analytes included in the LCS? | x | | | |
| c) Was the LCS accuracy criteria met? | x | | | |

| Duplicates | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were field duplicates collected (note original and duplicate sample names)? | | | | S-SCPD-DUP-1 @ S-TMW-5 |
| | x | | | See Notes |
| b) Were field dup. precision criteria met (note RPD)? | | x | | See Notes |
| c) Were lab duplicates analyzed (note original and duplicate samples)? | | | | |
| | x | | | See Notes |
| d) Were lab dup. precision criteria met (note RPD)? | | x | | |

| Blind Standards | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a blind standard used (indicate name, analytes included and concentrations)? | | | x | |
| b) Was the %D within control limits? | | | x | |

| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was MS accuracy criteria met? | | x | | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | | | x | |
| b) Was MSD accuracy criteria met? | | x | | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | | | x | |
| c) Were MS/MSD precision criteria met? | x | | | |

**Comments/Notes:**

General:

Chloride and Sulfate diluted for some samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Comments/Notes:**

Method Blanks:

3768607: Potassium (60.5 J), associated with samples -92004, -005. Results > RL and < 10x blank, results qualified as estimates.

Field blank:

S-SCPD-FB-1 @ S-TMW-6: no analytes detected in field blank.

Field duplicate:

S-SCPD-DUP-1 @ S-TMW-5: chloride RPD (40%) exceeds control limit (20%), results qualified as estimates.

Lab duplicates:

3773933: Lab RPD exceeds limits for alkalinity, associated with unrelated sample.

3769113: Lab RPD exceeds limits for TDS, associated with unrelated sample.

3770462: Lab RPD exceeds limits for TDS, associated with unrelated sample.

MS/MSD:

3768609/3768610: MS recovery high for calcium, MSD and RPD within control limits. No qualification necessary.

3769394/3769395: MSD recovery low for calcium, MS and RPD within control limits. No qualification necessary.

3777716/3777717: MS and MSD recovery low for chloride, RPD within control limits. Associated with unrelated sample.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Data Qualification:**

| Sample Name | Constituent(s) | Result | Qualifier | Reason |
|---|---|---|---|---|
| S-BMW-1S | Potassium | 516 | J | Detected in method blank, result > RL and < 10x blank |
| S-BMW-3S | " | 516 | J | " |
| S-SCPD-DUP-1 | Chloride | 2.7 | J | Field duplicate RPD exceeds control limit |
| S-TMW-5 | " | 1.8 | J | " |
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Signature: _____ Date: 11/18/2025

**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 22, 2025

Mark Haddock
Rocksmith Geoengineering, LLC.
2320 Creve Coeur Mill Road
Maryland Heights, MO 63043

RE: Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 2025. 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 - Kansas City

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren



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**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

## CERTIFICATIONS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Pace Analytical Services Kansas**

9608 Loiret Boulevard, Lenexa, KS 66219
EPA Lab Code: KS00021
Arkansas Certification #: 88-00679
Illinois Certification #: 200030
Colorado Division of Oil and Public Safety
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Oklahoma Certification #: 9205
Texas Certification #: T104704407
Utah Certification #: KS0002125-15
UDSA_CA : #KS-SC-DOM-25-01



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**Pace Analytical Services, LLC**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

## SAMPLE SUMMARY

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60487100001** | **S-TMW-4** | Water | 12/03/25 11:00 | 12/05/25 07:39 |
| **60487100002** | **S-TMW-5** | Water | 12/03/25 12:10 | 12/05/25 07:39 |
| **60487100003** | **S-TMW-6** | Water | 12/03/25 12:57 | 12/05/25 07:39 |
| **60487100004** | **S-SCPD-DUP-1** | Water | 12/03/25 00:00 | 12/05/25 07:39 |
| **60487100005** | **S-SCPD-FB-1** | Water | 12/03/25 13:01 | 12/05/25 07:39 |



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## SAMPLE ANALYTE COUNT

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **60487100001** | **S-TMW-4** | EPA 200.7 | ARMN | 1 | PASI-K |
| | | SM 2540C | DLJ | 1 | PASI-K |
| | | EPA 300.0 | GTS | 1 | PASI-K |
| **60487100002** | **S-TMW-5** | EPA 200.7 | ARMN | 1 | PASI-K |
| | | SM 2540C | DLJ | 1 | PASI-K |
| | | EPA 300.0 | GTS | 1 | PASI-K |
| **60487100003** | **S-TMW-6** | EPA 200.7 | ARMN | 1 | PASI-K |
| | | SM 2540C | DLJ | 1 | PASI-K |
| | | EPA 300.0 | GTS | 1 | PASI-K |
| **60487100004** | **S-SCPD-DUP-1** | EPA 200.7 | ARMN | 1 | PASI-K |
| | | SM 2540C | DLJ | 1 | PASI-K |
| | | EPA 300.0 | GTS | 1 | PASI-K |
| **60487100005** | **S-SCPD-FB-1** | EPA 200.7 | ARMN | 1 | PASI-K |
| | | SM 2540C | DLJ | 1 | PASI-K |
| | | EPA 300.0 | GTS | 1 | PASI-K |

PASI-K = Pace Analytical Services - Kansas City



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# ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Sample: S-TMW-4** **Lab ID: 60487100001** Collected: 12/03/25 11:00 Received: 12/05/25 07:39 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Calcium | **114000** | ug/L | 200 | 45.3 | 1 | 12/08/25 12:50 | 12/10/25 11:11 | 7440-70-2 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **481** | mg/L | 10.0 | 10.0 | 1 | | 12/10/25 10:20 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **82.3** | mg/L | 10.0 | 4.3 | 10 | | 12/17/25 18:53 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Sample: S-TMW-5** **Lab ID: 60487100002** Collected: 12/03/25 12:10 Received: 12/05/25 07:39 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Calcium | **141000** | ug/L | 200 | 45.3 | 1 | 12/08/25 12:50 | 12/10/25 11:12 | 7440-70-2 | M1,P6 |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **529** | mg/L | 10.0 | 10.0 | 1 | | 12/10/25 10:20 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **85.8** | mg/L | 10.0 | 4.3 | 10 | | 12/17/25 19:05 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Sample: S-TMW-6** **Lab ID: 60487100003** Collected: 12/03/25 12:57 Received: 12/05/25 07:39 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Calcium | **149000** | ug/L | 200 | 45.3 | 1 | 12/08/25 12:50 | 12/10/25 11:23 | 7440-70-2 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **604** | mg/L | 10.0 | 10.0 | 1 | | 12/10/25 10:20 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **69.1** | mg/L | 10.0 | 4.3 | 10 | | 12/17/25 19:41 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Sample: S-SCPD-DUP-1** **Lab ID: 60487100004** Collected: 12/03/25 00:00 Received: 12/05/25 07:39 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Calcium | **168000** | ug/L | 200 | 45.3 | 1 | 12/08/25 12:50 | 12/10/25 11:25 | 7440-70-2 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **655** | mg/L | 13.3 | 13.3 | 1 | | 12/10/25 10:20 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **71.1** | mg/L | 10.0 | 4.3 | 10 | | 12/17/25 19:54 | 14808-79-8 | |

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## ANALYTICAL RESULTS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

**Sample: S-SCPD-FB-1** **Lab ID: 60487100005** Collected: 12/03/25 13:01 Received: 12/05/25 07:39 Matrix: Water

| Parameters | Results | Units | PQL | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **200.7 Metals, Total** | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Calcium | **<45.3** | ug/L | 200 | 45.3 | 1 | 12/08/25 12:50 | 12/10/25 11:27 | 7440-70-2 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Total Dissolved Solids | **<5.0** | mg/L | 5.0 | 5.0 | 1 | | 12/10/25 10:20 | | |
| **300.0 IC Anions 28 Days** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Kansas City | | | | | | | | |
| Sulfate | **<0.43** | mg/L | 1.0 | 0.43 | 1 | | 12/17/25 20:06 | 14808-79-8 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

QC Batch: 957766
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

METHOD BLANK: 3795980 Matrix: Water
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Calcium | ug/L | <45.3 | 200 | 45.3 | 12/10/25 10:38 | |

LABORATORY CONTROL SAMPLE: 3795981

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Calcium | ug/L | 10000 | 10600 | 106 | 85-115 | |

MATRIX SPIKE SAMPLE: 3795982

| Parameter | Units | 60487051001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Calcium | ug/L | ND | 10000 | 27300J | 58 | 70-130 | M1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3795983 3795984

| Parameter | Units | 60487099002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ug/L | 167000 | 10000 | 10000 | 177000 | 175000 | 98 | 79 | 70-130 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3795985 3795986

| Parameter | Units | 60487100002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | ug/L | 141000 | 10000 | 10000 | 144000 | 146000 | 37 | 50 | 70-130 | 1 | 20 | M1 |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

QC Batch: 958050
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

METHOD BLANK: 3796883 Matrix: Water
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <5.0 | 5.0 | 5.0 | 12/10/25 10:18 | |

LABORATORY CONTROL SAMPLE: 3796884

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1000 | 1070 | 107 | 80-120 | |

SAMPLE DUPLICATE: 3796885

| Parameter | Units | 60487098001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 1230 | 1220 | 1 | 10 | |

SAMPLE DUPLICATE: 3796886

| Parameter | Units | 60487099002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 626 | 618 | 1 | 10 | |

SAMPLE DUPLICATE: 3796887

| Parameter | Units | 60487100002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 529 | 526 | 1 | 10 | |

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# QUALITY CONTROL DATA

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

QC Batch: 958948
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

METHOD BLANK: 3800444 Matrix: Water
Associated Lab Samples: 60487100001, 60487100002, 60487100003, 60487100004, 60487100005

| Parameter | Units | Blank Result | Reporting Limit | MDL | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | <0.43 | 1.0 | 0.43 | 12/17/25 15:28 | |

LABORATORY CONTROL SAMPLE: 3800445

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Sulfate | mg/L | 5 | 4.8 | 95 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3800448 3800449

| Parameter | Units | 60487100002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 85.8 | 50 | 50 | 134 | 133 | 96 | 95 | 80-120 | 0 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3800450 3800451

| Parameter | Units | 60487132017 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | mg/L | 84.1 | 100 | 100 | 194 | 191 | 110 | 107 | 80-120 | 1 | 15 | |

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# QUALIFIERS

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

## DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level. |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPD-VERIFICATION
Pace Project No.: 60487100

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60487100001** | **S-TMW-4** | EPA 200.7 | 957766 | EPA 200.7 | 957819 |
| **60487100002** | **S-TMW-5** | EPA 200.7 | 957766 | EPA 200.7 | 957819 |
| **60487100003** | **S-TMW-6** | EPA 200.7 | 957766 | EPA 200.7 | 957819 |
| **60487100004** | **S-SCPD-DUP-1** | EPA 200.7 | 957766 | EPA 200.7 | 957819 |
| **60487100005** | **S-SCPD-FB-1** | EPA 200.7 | 957766 | EPA 200.7 | 957819 |
| **60487100001** | **S-TMW-4** | SM 2540C | 958050 | | |
| **60487100002** | **S-TMW-5** | SM 2540C | 958050 | | |
| **60487100003** | **S-TMW-6** | SM 2540C | 958050 | | |
| **60487100004** | **S-SCPD-DUP-1** | SM 2540C | 958050 | | |
| **60487100005** | **S-SCPD-FB-1** | SM 2540C | 958050 | | |
| **60487100001** | **S-TMW-4** | EPA 300.0 | 958948 | | |
| **60487100002** | **S-TMW-5** | EPA 300.0 | 958948 | | |
| **60487100003** | **S-TMW-6** | EPA 300.0 | 958948 | | |
| **60487100004** | **S-SCPD-DUP-1** | EPA 300.0 | 958948 | | |
| **60487100005** | **S-SCPD-FB-1** | EPA 300.0 | 958948 | | |



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WO# : 60487100

60487100

| Pace ANALYTICAL SERVICES | DC#_Title: ENV-FRM-LENE-0009_Sample | | |
|---|---|---|---|
| | Revision: 3 | Effective Date: 09/22/2025 | Issued By: Lenexa |

Client Name: Rocksmith Geoengineering

**Courier:** FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☑ Client ☐ Other ☐

**Tracking #:** _____ Pace Shipping Label Used? Yes ☐ No ☑

**Custody Seal on Cooler/Box Present:** Yes ☑ No ☐ Seals intact: Yes ☑ No ☐ Cooling process has begun ☐

**Packing Material:** Bubble Wrap ☑ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ziplock

**Thermometer Used:** T301 DP 12.5 **Type of Ice:** (Wet) Blue None

DP

**Cooler Temperature (°C):** **As-read** 1.0 **Corr. Factor** 0.0 **Corrected** 1.1

**Date and initials of person examining contents:** 12-5

Temperature should be above freezing to 6°C

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | |
| Sufficient volume: | ☑Yes ☐No ☐N/A | |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | |
| Containers intact: | ☑Yes ☐No ☐N/A | |
| Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? | ☐Yes ☐No ☑N/A | |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | |
| Sample labels match COC: Date / time / ID / analyses | ☑Yes ☐No ☐N/A | |
| Samples contain multiple phases? Matrix: WT | ☐Yes ☑No ☐N/A | |
| Containers requiring pH preservation in compliance? ($HNO_3$, $H_2SO_4$, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, Radium) **LOT#:** 96888 | ☑Yes ☐No ☐N/A | List sample IDs, volumes, lot #'s of preservative and the date/time added. |
| Cyanide water sample checks: Lead acetate strip turns dark? (Record only) | ☐Yes ☐No | |
| Potassium iodide test strip turns blue/purple? (Preserve) | ☐Yes ☐No | |
| Trip Blank present: | ☐Yes ☐No ☑N/A | |
| Headspace in VOA vials ( >6mm): | ☐Yes ☐No ☑N/A | |
| Samples from USDA Regulated Area: State: | ☐Yes ☐No ☑N/A | |
| Additional labels attached to 5035A / TX1005 vials in the field? | ☐Yes ☐No ☑N/A | |

**Client Notification/ Resolution:** Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

60487100

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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:

| | |
|---|---|
| Company: | Rocksmith Geoengineering, LLC |
| Address: | 5233 Roanoke Drive |
| | St. Charles, MO 63304 |
| Email To: | mark.haddock@rocksmithgeo.com |
| Pho 314-974-5678 | Fax |
| Requested Due Date/TAT: | Standard |

**Section B** — **Required** Project Information:

| | |
|---|---|
| Report To: | Mark Haddock |
| Copy To: | Jeffery Ingram, Grant Morey |
| Purchase Order No.: | COC #1 |
| Project Name: | Ameren SCPD - Verification Sampling |
| Project Number: | COC# |

**Section C** — Invoice Information:

| | |
|---|---|
| Attention: | |
| Company Name: | Rocksmith |
| Address: | |
| Pace Quote Reference: | Jamie Church |
| Pace Project Manager: | |
| Pace Profile #: | 15856, line 1 |

**REGULATORY AGENCY**

NPDES | GROUND WATER | DRINKING WATER
UST | RCRA | O _____

Site Location STATE: MO

**Section D** — **Required** Client Information

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 (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE | MATRIX CODE (see valid codes to) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COLLECTED COMPOSITE START TIME | COLLECTED COMPOSITE END/GRA DATE | COLLECTED COMPOSITE END/GRA TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Calcium | Sulfate | TDS | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S-TMW-4 | WT | G | | | | | 1100 | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 2 | S-TMW-5 | WT | G | | | | | 1210 | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 3 | S-TMW-6 | WT | G | | | | | 1257 | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 4 | S-SCPD-DUP-1 | WT | G | | | | | — | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 5 | S-SCPD-FB-1 | WT | G | | | | | 1301 | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 6 | S-SCPD-MS-1 | WT | G | | | | | 1210 | 2 | 1 | | 1 | | | | | | X | X | X | | |
| 7 | S-SCPD-MSD-1 | WT | G | | | | | 1210 | 2 | 1 | | 1 | | | | | | X | X | X | | Collected @ S-TMW-5 |
| 8 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 9 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 10 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 11 | | WT | G | | | | | | | | | | | | | | | | | | | |
| 12 | | WT | G | | | | | | | | | | | | | | | | | | | |

Requested Analysis Filtered (Y/N)

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS |
|---|---|---|---|---|---|---|---|
| | Daniel Quick RSG | 12-4-25 | 1322 | DP PACE | 12.5 | 0739 | 1.1 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Daniel Quick

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12-4-25

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

XR

Client: Rocksmith bioengineering  Profile/EZ # 15856, 1

Site: ~~15856~~ Ameren SCPD - verification sampling  Notes



| COC Line Item | Matrix | VG9H | DG9H | DG9Q | VG9U | DG9U | DG9M | DG9B | BG1U | AG1H | AG1U | AG2U | AG3S | AG4U | AG5U | JGFU | WGKU | WGDU | BP1U | BP2U | BP3U | BP1N | BP3N | BP3F | BP3S | BP3B | BP3Z | WPDU | ZPLC | Other | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WT | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | 3 | | | 3 | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| Glass | | | |
|---|---|---|---|
| DG9B | 40mL bisulfate clear vial | WGKU | 8oz clear soil jar |
| DG9H | 40mL HCl amber voa vial | WGFU | 4oz clear soil jar |
| DG9M | 40mL MeOH clear vial | WG2U | 2oz clear soil jar |
| DG9Q | 40mL TSP amber vial | JGFU | 4oz unpreserved amber wide |
| DG9S | 40mL H2SO4 amber vial | AG0U | 100mL unores amber glass |
| DG9T | 40mL Na Thio amber vial | AG1H | 1L HCl amber glass |
| DG9U | 40mL amber unpreserved | AG1S | 1L H2SO4 amber glass |
| VG9H | 40mL HCl clear vial | AG1T | 1L Na Thiosulfate clear/amber glass |
| VG9T | 40mL Na Thio. clear vial | AG1U | 1liter unpres amber glass |
| VG9U | 40mL unpreserved clear vial | AG2N | 500mL HNO3 amber glass |
| BG1S | 1liter H2SO4 clear glass | AG2S | 500mL H2SO4 amber glass |
| BG1U | 1liter unpres glass | AG3S | 250mL H2SO4 amber glass |
| BG3H | 250mL HCL Clear glass | AG2U | 500mL unpres amber glass |
| BG3U | 250mL Unpres Clear glass | AG3U | 250mL unpres amber glass |
| WGDU | 16oz clear soil jar | AG4U | 125mL unpres amber glass |
| | | AG5U | 100mL unpres amber glass |

| Plastic | |
|---|---|
| BP1B | 1L NAOH plastic |
| BP1N | 1L HNO3 plastic |
| BP1S | 1L H2SO4 plastic |
| BP1U | 1L unpreserved plastic |
| BP1Z | 1L NaOH, Zn Acetate |
| BP2B | 500mL NAOH plastic |
| BP2N | 500mL HNO3 plastic |
| BP2S | 500mL H2SO4 plastic |
| BP2U | 500mL unpreserved plastic |
| BP2Z | 500mL NaOH, Zn Acetate |
| BP3B | 250mL NaOH plastic |
| BP3F | 250mL HNO3 plastic - field filtered |
| BP3N | 250mL HNO3 plastic |
| BP3U | 250mL unpreserved plastic |
| BP3S | 250mL H2SO4 plastic |
| BP3Z | 250mL NaOH, Zn Acetate |
| BP4U | 125mL unpreserved plastic |
| BP4N | 125mL HNO3 plastic |
| BP4S | 125mL H2SO4 plastic |
| WPDU | 16oz unpresserved plstic |

| Misc. | |
|---|---|
| I | Wipe/Swab |
| SP5T | 120mL Coliform Na Thiosulfate |
| ZPLC | Ziploc Bag |
| AF | Air Filter |
| C | Air Cassettes |
| R | Terracore Kit |
| U | Summa Can |

| Matrix | |
|---|---|
| WT | Water |
| SL | Solid |
| NAL | Non-aqueous Liquid |
| OL | OIL |
| WP | Wipe |
| DW | Drinking Water |

Work Order Number:

**WO#: 60487100**

**PM: JLS  Due Date: 12/19/25**

**CLIENT: Rocksmith**

# Memorandum

**December 23, 2025**

| | | | |
|---|---|---|---|
| **To:** | Project File<br>Rocksmith Geoengineering, LLC | **Project Number:** | 23009-25 |
| **CC:** | Mark Haddock, Jeffrey Ingram | | |
| **From:** | Valerie Hurt | **Email:** | Valerie.Hurt@Rocksmithgeo.com |
| **RE:** | **Data Validation Summary, Sioux Energy Center – SCPD – Data Package 60487100** | | |

The following is a summary of instances where quality control criteria in the functional guidelines were not met, and data qualification was required:

- When a matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).
- When a duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPD-Verfication
Project Number: 23009-25
Reviewer: V. Hurt
Validation Date: 12/23/2025

Laboratory: Pace Analytical
SDG #: 60487100
Analytical Method (type and no.): EPA 300.0 (Anions); SM2540C (Total Dissolved Solids)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, and S-SCPD-FB-1

**NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).**

| Field Information | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Sampling dates noted? | x | | | 12/3/2025 |
| b) Sampling team indicated? | x | | | JTR & JDQ |
| c) Sample location noted? | x | | | |
| d) Sample depth indicated (Soils)? | | | x | |
| e) Sample type indicated (grab/composite)? | x | | | Grab |
| f) Field QC noted? | x | | | See Notes |
| g) Field parameters collected (note types)? | x | | | pH, Spec Cond, Turb, Temp, DO, ORP |
| h) Field Calibration within control limits? | x | | | |
| i) Notations of unacceptable field conditions/performances from field logs or field notes? | | x | | |
| j) Does the laboratory narrative indicate deficiencies? | | | x | No lab narrative. |

Note Deficiencies: _____

| Chain-of-Custody (COC) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was the COC properly completed? | x | | | |
| b) Was the COC signed by both field and laboratory personnel? | x | | | |
| c) Were samples received in good condition? | x | | | |

| General (reference QAPP or Method) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were hold times met for sample pretreatment? | x | | | |
| b) Were hold times met for sample analysis? | x | | | |
| c) Were the correct preservatives used? | x | | | |
| d) Was the correct method used? | x | | | |
| e) Were appropriate reporting limits achieved? | x | | | |
| f) Were any sample dilutions noted? | x | | | See Notes |
| g) Were any matrix problems noted? | | x | | |

# QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

| Blanks | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were analytes detected in the method blank(s)? | ☐ | ☒ | ☐ | |
| b) Were analytes detected in the field blank(s)? | ☐ | ☒ | ☐ | S-TMW-FB-1 @ S-TMW-6 |
| c) Were analytes detected in the equipment blank(s)? | ☐ | ☐ | ☒ | |
| d) Were analytes detected in the trip blank(s)? | ☐ | ☐ | ☒ | |

| Laboratory Control Sample (LCS) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a LCS analyzed once per SDG? | ☒ | ☐ | ☐ | |
| b) Were the proper analytes included in the LCS? | ☒ | ☐ | ☐ | |
| c) Was the LCS accuracy criteria met? | ☒ | ☐ | ☐ | |

| Duplicates | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Were field duplicates collected (note original and duplicate sample names)? | ☒ | ☐ | ☐ | |
| b) Were field dup. precision criteria met (note RPD)? | ☐ | ☒ | ☐ | S-TMW-DUP-1 @ S-TMW-4 |
| c) Were lab duplicates analyzed (note original and duplicate samples)? | ☒ | ☐ | ☐ | |
| d) Were lab dup. precision criteria met (note RPD)? | ☒ | ☐ | ☐ | |

| Blind Standards | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was a blind standard used (indicate name, analytes included and concentrations)? | ☐ | ☐ | ☒ | |
| b) Was the %D within control limits? | ☐ | ☐ | ☒ | |

| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | YES | NO | NA | COMMENTS |
|---|---|---|---|---|
| a) Was MS accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| b) Was MSD accuracy criteria met? | ☐ | ☒ | ☐ | See Notes |
| Recovery could not be calculated since sample contained high concentration of analyte? | ☐ | ☐ | ☒ | |
| c) Were MS/MSD precision criteria met? | ☐ | ☒ | ☐ | See Notes |

**Comments/Notes:**

General:

Sulfate diluted in several samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Comments/Notes:**

Field Blanks:

S-TMW-FB-1 @ S-TMW-6: No detections.

Field duplicate:

S-TMW-DUP-1 @ S-TMW-4: RPD exceeds precision criteria (20%) for Calcium (38%) and TDS (30%). Results qualified as estimates.

MS/MSD:

3795982: MS recovery high for calcium associated with unrelated sample, no qualification necessary.

3795985/3795986: Calcium MS/MSD recovery low, RPD OK. Associated with sample -002, result qualified as estimate.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

**Data Qualification:**

| Sample Name | Constituent(s) | Result | Qualifier | Reason |
|---|---|---|---|---|
| S-TMW-5 | Calcium | 141000 | J- | MS/MSD recovery low, RPD OK |
| S-TMW-4 | Calcium | 114000 | J | RPD exceeds precision criteria |
| S-SCPD-DUP-1 | " | 168000 | J | " |
| S-TMW-4 | TDS | 481 | J | " |
| S-SCPD-DUP-1 | " | 655 | J | " |
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Signature: _____ Date: 12/23/2025

# Appendix B

## Alternative Source Demonstration – November 2024 Sampling Event

REPORT

# SCPD – Alternative Source Demonstration

**Sioux Energy Center, St. Charles County, Missouri, USA**

**June 20, 2025**

**Project Number: 23009-25**

## Submitted to:

Ameren Missouri
1901 Chouteau Ave
St. Louis, MO 63103

## Submitted by:

Rocksmith Geoengineering, LLC
2320 Creve Coeur Mill Rd
Maryland Heights, MO 63043

# Table of Contents



## TABLES



## FIGURES

# 1.0 CERTIFICATION STATEMENT

This *SCPD – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA* has been prepared to comply with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule) under the direction of a licensed professional engineer with Rocksmith Geoengineering, LLC.

I hereby certify that this *SCPD – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA* located at 8501 Missouri 94, West Alton, Missouri 63386 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

**Rocksmith Geoengineering, LLC.,**


_____

Mark Haddock, P.E., R.G.

Principal Engineer, Senior Partner

# 2.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCPD – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for two Statistically Significant Increase (SSIs) identified for Ameren Missouri's (Ameren's) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) SCPD (Cell 2). This document satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSIs were the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

# 3.0 SITE DESCRIPTION AND BACKGROUND

Ameren owns and operates the SEC in St. Charles County, Missouri located approximately 12 miles west-northwest of the confluence of the Mississippi and Missouri Rivers. **Figure 1** depicts the site location and layout, including the location of SCPD. The SEC is approximately 1,025 acres and is located in the floodplain between the Mississippi and Missouri Rivers. The SEC is bounded to the north by wooded areas associated with the Mississippi River; to the south by a railroad; and to the east and west by agricultural fields.

## 3.1 Geological and Hydrogeological Setting

Hydrogeologically, the SCPD lies between the Mississippi River to the north and the Missouri River to the south. Flow and deposition from these rivers have resulted in thick alluvial deposits that lie unconformably on top of bedrock. These alluvial deposits range from approximately 100 to 130 feet in thickness and comprise the uppermost aquifer, called the alluvial aquifer. Overall, this aquifer is described as a fining upwards sequence of stratified sands and gravels with varying amounts of silt and clay. Drilling in the alluvial aquifer identified different sub-units, including floodplain deposits, natural levee deposits, and channel deposits along with volumetrically less important loess deposits. Grain sizes of these alluvial deposits are variable.

Beneath the alluvial aquifer lies the bedrock aquifer. Bedrock in this region includes Mississippian-aged rocks of the Meramecian Series. Formations include primarily limestone, dolomite, and shale and are comprised of the Salem Formation overlying the Warsaw Formation and the Burlington-Keokuk Formation.

## 3.2 Utility Waste Landfill – SCPD

UWL Cell 2 is referred to by Ameren as the SCPD, or "Gypsum Pond" Cell 2. The SCPD is approximately 36 acres in size and is located south of the generating plant on the south side of Highway 94 (**Figure 1**). The CCR Unit began operation on December 14, 2022 and manages CCR from the SEC Wet Flue-Gas Desulfurization System (WFGD).

The WFGD process occurs after the removal of slag and fly ash. A crushed limestone ($CaCO_3$) mix is introduced into the boiler flue gas flow. The limestone reacts with sulfur dioxide ($SO_2$) in the flue gas and produces 'synthetic' gypsum (calcium sulfate dihydrate ($CaSO_4 * 2H_2O$)). The resultant gypsum material was formerly wet sluiced from the plant across the highway to the SCPC but has been wet sluiced to SCPD since December 14, 2022. Once there, the gypsum material is dewatered by gravity, with the sluice conveying recycled water back to the WFGD for reuse. The primary soluble constituents of the gypsum CCR are sulfate, calcium, chloride, and sodium (Gredell and Reitz & Jens 2014).

The SCPD is bounded immediately on the west by the closed SCPC surface Impoundment (UWL Cell 1), northeast by the SCL4A landfill cell (UWL Cell 4a), the north by the UWL recycle pond, and south/southeast by low lying agricultural floodplain. The perimeter berm surrounding the SCPD is constructed to an elevation of 446 feet above mean sea level (MSL), which is approximately 5 feet above 100-year flood elevation of 441.2 feet MSL and about 12 to 18 feet above the surrounding low-lying farmland. This berm elevation is equivalent to the adjacent SCPC, SCL4A, and UWL recycle pond areas. Additionally, the SCPD is lined with a bottom composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than $1 \times 10^{-7}$ centimeters per second (cm/sec) overlain by a 60-mil flexible high-density polyethylene (HDPE) geomembrane liner. This liner system has a base elevation (top of liner/base of CCR) of approximately 432 feet MSL at its lowest point.

A groundwater monitoring well network was installed in 2007 and 2008 in order to permit the UWL construction. This monitoring well network was approved by the Missouri Department of Natural Resources (MDNR) and consists of 16 monitoring wells ringing the current and proposed future extents of the UWL (**Figure 1**). These monitoring wells are installed in the uppermost portions of the alluvial aquifer, just below the seasonally low elevation for groundwater. Quarterly groundwater samples have been collected in these monitoring wells since June 2008 for the Missouri UWL parameters. Placement of WFGD materials in the SCPD started on December 14, 2022.

## 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, prior to the initial receipt of CCR on December 14, 2022 the following were completed: (1) a groundwater monitoring well system was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, (3) a Groundwater Monitoring Plan (GMP) was prepared recording the design, installation, development, sampling procedures, as well as statistical methods, and placed in the owner's operating record, and (4) eight baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of CCR Rule.

The groundwater monitoring system for the SCPD consists of six monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on **Figure 1**. One monitoring well (UG-2) was installed by Gredell Engineering Resources, Inc. (Gredell) in December 2007 as a part of the Missouri UWL state monitoring program. This monitoring well is used in both the SCPC and SCPD groundwater monitoring well networks. The background monitoring wells (BMW-1S and BMW-3S) were installed by Golder Associates Inc. (Golder) in 2016 for CCR Rule groundwater monitoring purposes. Three monitoring wells (TMW-4, TMW-5, and TMW-6) were installed in March 2022 to the south and southeast of the SCPD by WSP USA, Inc. (WSP) specifically for CCR groundwater monitoring of the SCPD. More information on the design and installation of the monitoring wells is provided in the SCPD GMP (WSP 2022) and the SCPD 2022 Annual Report (WSP 2023).

Between May 2016 and June 2017, eight baseline sampling events were completed for the existing monitoring wells used to monitor the SCPD (UG-2, BMW-1S, and BMW-3S). Eight baseline sampling events were also completed between March and October of 2022 for TMW-4, TMW-5, and TMW-6. After baseline sampling, the first Detection Monitoring event was completed in May 2023. The following Appendix III constituents were analyzed during Detection Monitoring:

- Boron
- Calcium
- Chloride
- pH
- Sulfate
- Total Dissolved Solids (TDS)
- Fluoride

In January 2023, background results from the eight baseline sampling events were used to calculate statistical upper prediction limits (UPLs) for wells TMW-4, TMW-5, and TMW-6. Since monitoring well UG-2 is included in both the SCPC and SCPD monitoring networks, statistical limits for this well follow those used for SCPC monitoring, which were updated in March 2024 (Rocksmith 2024). These UPLs were then compared to the Detection Monitoring results from the May 2023 sampling event and subsequent sampling events. If a result from the Detection Monitoring event is higher than the calculated UPL, it is classified as an initial exceedance, and a verification sample is then collected and tested in accordance with the SCPD Statistical Analysis Plan (SAP). In November 2024, two initial exceedances were identified: sulfate at TMW-4 and TMW-5. Verification sampling in February confirmed each initial exceedance as an SSI. Results from this sampling event are provided in **Table 1**.

# 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

Monitoring wells TMW-4 and TMW-5 are screened in the upper portion of the alluvial aquifer, just below the average seasonal low elevation for groundwater. As shown in **Figure 1**, TMW-4 and TMW-5 are located immediately south of the SCPD. The SCPD is located south of the generating plant, Highway 94, and the two surface impoundments near the plant (SCPA and SCPB), and north of Dwiggins Road.

Based on Rocksmith's review of the pre-disposal data (discussed in Section 3.2 above), as well as our comparison of the pre-disposal data with the results from the eight CCR-rule baseline events, it was concluded that the groundwater in some areas around the SCPD contains low-level pre-existing impacts from CCR that pre-date SCPD construction and operation. As a result of these pre-existing impacts, the SCPD statistical analysis plan uses intrawell UPLs to determine SSIs. Intrawell UPLs are calculated from historical data within a particular well, and not by pooling data from the background wells, such that individual limits are calculated for each constituent in each well in the monitoring program. A summary table of the November 2024 SSIs is provided in **Table 2.**

**Table 2 – Review of Statistically Significant Increases**

| Constituent | Well ID | Current UPL | Range of Values Prior to November 2024 Sampling Event | November 2024 Result | February 2025 Result |
|---|---|---|---|---|---|
| Sulfate (mg/L) | TMW-4 | 44.43 | 38.3 – 73.9 | 58.1 | 76.0 |
| Sulfate (mg/L) | TMW-5 | 46.12 | 34.9 – 72.8 | 83.9 | 56.2 |
| Sulfate (mg/L) | Background Wells (BMW-1S & BMW-3S) | 61.1 | 12.3 – 61.1 | 37.1 & 17.1 | NS |

Notes:
1) mg/L – milligrams per liter.
2) µg/L – micrograms per liter.
3) UPL – Upper Prediction Limit. UPLs calculated using Sanitas™ software.
4) ND – Non-Detect.
5) J – Result is an estimated value.
6) NS – Not sampled.

# 5.0 EVIDENCE OF SSIS FROM ALTERNATIVE SOURCE

Several different lines of evidence indicate that the SSI is not the result of a release from the SCPD and that the SSI originates from an alternative source. The following bullets summarize the different lines of evidence that support this ASD:

- Lack of elevated key FGD Indicators (boron, fluoride, calcium) above pre-CCR placement levels at monitoring wells TMW-4 and TMW-5.
- Documentation of pre-existing, low-level concentrations of CCR indicators in groundwater that pre-date the SCPD operation nearby these downgradient monitoring wells.
- Sulfate concentrations in the Missouri River south of the SEC exceed those measured at TMW-4 and TMW-5.
- Current UPLs for each of these wells were calculated from only eight baseline sampling events, which likely do not capture the full natural geochemical variability of the aquifer.
- Construction documents for the SCPD indicating the 60-mil high-density polyethelyne (HDPE) geomembrane liner and a 2-foot thick clay barrier, verified by quality assurance testing during construction.

## 5.1 CCR Indicators

Several types of CCR byproducts are generated by coal-fired power plants. The different types of CCR typically display distinct geochemical signatures and indicator parameters. **Table 3** below describes the different types of CCRs and their typical indicator parameters (USEPA 2018, EPRI 2011, EPRI 2012, and EPRI 2017).

**Table 3 – Types of CCR and Typical Indicator Parameters**

| Type of CCR | Description of CCR (USEPA 2018) | Key Indicators (EPRI 2011, 2012, 2017) |
|---|---|---|
| **Fly Ash** | Fine grained, powdery material composed mostly of silica made from the burning of finely ground coal in the boiler. | • Boron<br>• Molybdenum<br>• Lithium<br>• Sulfate<br>• Bromide<br>• Potassium<br>• Sodium<br>• Fluoride |
| **Boiler Slag / Bottom Ash** | Molten bottom ash from the slag tap and cyclone type furnaces that turns into pellets that have a smooth glassy appearance after quenching with water. | |
| **Flue Gas Desulfurization Material (FGD)** | A material leftover from the process of reducing sulfur dioxide emissions from a coal-fired boiler that can be a wet sludge consisting of calcium sulfite or calcium sulfate or a dry powdered material that is a mixture of sulfites and sulfates. | • Sulfate<br>• Fluoride<br>• Calcium<br>• Boron<br>• Bromide<br>• Chloride |

Notes:

1) Fly ash and boiler slag/bottom ash typically have the same indicator parameters.
2) Definitions from USEPA website, available at https://www.epa.gov/coalash/coal-ash-basics.
3) Key indicators from EPRI 2011, 2012, and 2017 as well as Gredell and Reitz & Jens, 2014.

As described above, the SCPD has historically received FGD type wastes that are managed at the SEC.

## 5.2 Site Specific Key CCR Indicators

To be a key CCR Indicator parameter for a specific site, a constituent should be present in relatively high concentrations in the leachate (CCR porewater) when compared to background or other sources (nearby rivers, etc.), not be a common anthropogenic contaminant, and be mostly non-reactive and mobile in the site hydrogeological environment (EPRI 2012). In 2012, EPRI investigated which constituents are the best indicator parameters for coal ash impacts as outlined in **Table 1**. Of the key indicators listed in **Table 1** for flue gas desulfurization material, sulfate, fluoride, calcium, boron, and chloride are regularly sampled as part of the CCR Rule. Testing for bromide has not been completed at this site.

**Table 2** provides a snapshot of the concentrations present onsite in background groundwater, Mississippi River, Missouri River, SCPA porewater, and SCPD leachate for the constituents sampled on the key indicator list for FGD material.

**Table 4 – Summary of FGD Impact Indicator Parameters at the Sioux Energy Center**

| Constituent (Units) | | Back-ground | Mississippi River[1] | Missouri River[1] | SCPA Porewater | SCPD Leachate | Advantages and Caveats as Key Indicator (from EPRI 2012) |
|---|---|---|---|---|---|---|---|
| Boron (µg/L) | Minimum | 42.4 | 27.1 | 110 | 348 | 239,000 | Mobile indicator constituent for unwashed FGD gypsum. Concentrations for washed gypsum may be too low to be useful. |
| | Average | 93.27 | 36.4 | 112.3 | 53,266 | | |
| | Maximum | 240 | 59.9 | 117 | 111,000 | | |
| Sulfate (mg/L) | Minimum | 12.3 | 29.9 | 188 | 48.5 | 5,820 | High concentrations expected in both washed and unwashed FGD gypsum. Commonly analyzed. Very mobile in all hydrogeologic environments. Less useful in strongly reducing environments where sulfate can be reduced to hydrogen-sulfide gas. |
| | Average | 30.60 | 34.08 | 192.1 | 1,088 | | |
| | Maximum | 61.1 | 40.5 | 196 | 2,080 | | |
| Fluoride (mg/L) | Minimum | ND (<0.086) | 0.16 | 0.43 | 0.22 | 68.0 | Mobile and non-reactive in common hydrogeologic environments. Assure that leachate concentration is higher than background, particularly for washed gypsum. |
| | Average | 0.266 | 0.196 | 0.4435 | 1.142 | | |
| | Maximum | 0.46 | 0.24 | 0.46 | 2.9 | | |
| Calcium (µg/L) | Minimum | 97,100 | 42,500 | 63,000 | 73,400 | 911,000 | High concentrations expected in both washed and unwashed FGD gypsum. Understanding of carbonate chemistry necessary to assure that precipitation or dissolution does not affect downgradient concentrations. |
| | Average | 129,503 | 50,255 | 64,385 | 409,680 | | |
| | Maximum | 184,000 | 58,500 | 65,400 | 825,000 | | |
| Chloride (mg/L) | Minimum | 1.9 | 22.2 | 23.3 | 20.5 | 7,390 | Mobile indictor constituent for unwashed FGD gypsum. Concentrations may be very high if transport water is recirculated. Concentrations for washed gypsum may be too low to be useful. |
| | Average | 8.8 | 27.06 | 23.48 | 24.34 | | |
| | Maximum | 16.8 | 41.0 | 23.9 | 27.1 | | |

Notes:

1) Unit abbreviations - mg/L – milligrams per liter, µg/L – micrograms per liter
2) ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
3) SCPA porewater samples collected by Golder Associates in January 2018.
4) A single leachate sample was collected directly from the SCPD by Gredell Engineering Resources, Inc. in December 2023. The SCPD currently collects WFGD material that was once sluiced to the SCPC until December 2022.

Boron has previously been attributed as a primary indicator for CCR impacts at the site, particularly for bottom and fly ash impacts. As shown in **Table 2**, the FGD leachate material contained in the SCPD (as well as the adjacent SCPC) contains significantly higher concentrations of key indicator parameters than other potential sources at the SEC. The following describes the practicality of each of the key FGD indicators for determining CCR impacts from the SCPD:

- Boron, which is typically the most mobile of CCR-related constituents, would be expected to have the most notable increase if there were impacts from the SCPC/SCPD. Of the key FGD indicators listed above, the boron concentration in SCPD leachate is greatest relative to background groundwater at the site (2,541 times higher concentration in SCPD leachate than average background groundwater). Other key FGD indicators are lower in terms of their relative concentrations in leachate compared to background groundwater. Additionally, boron has low concentrations in the adjacent Missouri and Mississippi Rivers;

[1] Mississippi and Missouri River samples collected September 21 & 22, 2017 and May 8, 2018. Results are available on Ameren's public website at https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports/sioux-energy-center.

therefore, elevated boron is likely from a CCR unit, whether it be the SCPA, SCPB, SCPC, SCPD, or SCL4A.

- Fluoride may be a very good FDG indicator parameter because it is typically mobile in most geological environments and is present in SCPD leachate at a level 248 times greater than average background groundwater concentrations. Background fluoride concentrations are also similar to Mississippi and Missouri River concentrations; therefore, an apparent source of increased fluoride could be from FGD impacts. Fluoride concentrations are also much higher in FGD leachate than SCPA porewater, indicating that if increased fluoride is occurring, it would be suspected that the impacts may be from FGD and not fly ash or bottom ash as managed by the SCPA.
- Chloride may be a good FGD indicator parameter because it is mobile in most geological environments and is present in SCPD leachate at a level 856 times greater than average background groundwater concentrations. However, chloride concentrations can be greatly affected by the use of road salt (NaCl) for road deicing. Chloride concentrations for the DG-xx wells installed south of the UWL were measured as high as 125 mg/L prior to any placement of CCR materials in the UWL (prior to June 30, 2010). Additionally, surface water samples collected from the Mississippi and Missouri Rivers near the SEC average approximately 27 and 23 mg/L of chloride, respectively. Therefore, if chloride concentrations are significantly greater than these sources (greater than approximately 125 mg/L), then chloride can be a good indicator parameter for FGD impacts. At concentrations lower than this, chloride is less effective as a FGD indicator at the SEC.
- Sulfate may be a good FGD indicator parameter as well because it is mobile in most geological environments and is present at a level 187 times greater than average background groundwater concentrations. However, based on surface water sampling near the SEC, sulfate concentrations in the Mississippi and Missouri Rivers reach up to approximately 196 mg/L. Therefore, if sulfate concentrations are significantly greater than concentrations in the nearby rivers and background groundwater (greater than approximately 200 mg/L), then it may be a good indicator for CCR indicator for fly ash, bottom ash, or FGD impacts. At concentrations lower than this, sulfate is less effective as an FGD indicator at the SEC.
- Calcium may be a useful FDG Indicator parameter; however, it is not always mobile in all geological environments and an understanding of carbonate chemistry necessary to assure that precipitation or dissolution does not affect downgradient concentrations. Additionally, calcium concentrations are only 7 times greater in the FGD leachate than average background groundwater at the site. Significant increases in calcium may indicate an FGD impact; however, increases would be expected to be less notable than other key indicators, such as boron and fluoride.

## 5.3 Concentrations of Key FGD Indicators in Monitoring Wells with SSI

The SCPC was permitted to receive FGD material beginning in July 2010, and receipt of FGD material ceased on December 14, 2022, when the SCPD began receiving FGD material. Monitoring wells TMW-4 and TMW-5 were installed in March of 2022 and since that time, concentrations of boron, fluoride, and calcium, key FGD indicators have remained steady or decreased. **Figures 2-6** display historical concentrations of each of the key indicator parameters of FGD impacts at downgradient SCPD monitoring wells. As displayed in the figures, TMW-4 and TMW-5 do not show increases in the two most effective FGD indicators at the site (boron and fluoride) following CCR placement in the SCPD. This behavior of key FGD indicators at each of these wells is strong evidence that impacts from the SCPD are not occurring, and a source other than CCR is likely the cause of the SSIs.

## 5.4 Evaluation of the Statistically Significant Increase of Sulfate at TMW-4 and TMW-5

As discussed in Section 5.3, sulfate may be a good FGD indicator parameter because it is mobile in most geological environments; however, based on surface water sampling of the Missouri River south of the SEC, sulfate concentrations were measured as high as 196 mg/L. Therefore, sulfate concentrations observed in monitoring wells are significantly greater than concentrations in nearby rivers and background groundwater (greater than approximately 200 mg/L), then it may be a good indicator for CCR indicator for fly ash, bottom ash, or FGD impacts. At concentrations lower than this, sulfate is less effective as an FGD indicator at the SEC, as there are naturally occurring concentrations in a similar range interacting with the local alluvial aquifer.

The time series plot on **Figure 5** shows variability in sulfate concentrations at the TMW wells south of the SCPD since the onset of baseline monitoring in April 2022. As displayed in the figure, during the eight baseline sampling events, sulfate concentrations ranged from 38.3 to 47.7 mg/L at TMW-4 and from 34.9 to 42.0 mg/L at TMW-5. Baseline sampling was completed within a 7-month period from April 2022 through October 2022. Since the completion of baseline sampling, sulfate has ranged from 38.3 to 76.0 mg/L at TMW-4 and 39.7 to 83.9 mg/L at TMW-5.

**Figure 7** displays a box and whisker plot of the sulfate concentrations observed at the DG-xx wells prior to the receipt of CCR in the SCPC, SCPD, and SCL4A (prior to 7/30/2010). These plots reflect the high variability of sulfate in the vicinity of the SCPD, prior to any potential impacts from CCR placed in the area. As shown in **Figure 7**, the recent results at TMW-4 and TMW-5 are largely within the range of sulfate concentrations at the DG-xx wells prior to CCR placement. Pre-CCR placement concentrations in these wells ranged from 11.0 to 83.0 mg/L, the latter of which is greater than the current sulfate UPLs at TMW-4 and TMW-5.

Based on these data, the variability in sulfate concentrations observed at downgradient monitoring wells over time is not a result of SCPD CCR influence on groundwater. Additionally, sulfate concentrations within the Missouri River to the south of the SEC averaged approximately 192 mg/L, as shown in **Table 2**, which is significantly greater than the sulfate SSIs at TMW-4 and TMW-5. The Missouri River is an alternative source of sulfate to the groundwater at the SEC and likely contributes to the sulfate variability at the site, especially during times (recent years) of northward groundwater flow from the Missouri River towards the Mississippi River. The sulfate SSIs are most likely a result of natural geochemical variability within the aquifer caused by the variable river source loading to the aquifer.

# 6.0 DEMONSTRATION THAT SSI WAS NOT CAUSED BY SCPD IMPACTS

Based on the information presented in Section 5.0 above, the SSIs reported for chloride at sulfate at TMW-4 and TMW-5 in the November 2024 sampling event are not the result of impacts from the SCPD. The following lines of evidence support this conclusion:

- Key FGD indicator parameters such as boron, fluoride, and calcium are not elevated when comparing recent results with baseline sampling results collected before CCR placement in the SCPD.
- Historical sulfate concentrations predating CCR placement in the SCPC, SCPD, and SCL4A (prior to July 30, 2010) in monitoring wells near TMW-4 and TMW-5 exhibit a high degree of variability, with some results exceeding recent sulfate concentrations at TMW-4 and TMW-5.
- Sulfate concentrations in the Missouri River south of the SCPD exceed those measured at TMW-4 and TMW-5 and the river recharges the groundwater aquifer.
- Current UPLs for each of these wells were calculated from only eight baseline sampling events, which likely do not capture the full natural geochemical variability of the aquifer.

Along with these lines of evidence listed above, the SCPD is lined with a composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than 1 X $10^{-7}$ centimeters per second (cm/sec) overlain by a 60-mil flexible high-density polyethylene (HDPE) geomembrane liner which was designed and constructed to properly contain CCR and prevent groundwater impacts.

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# Tables

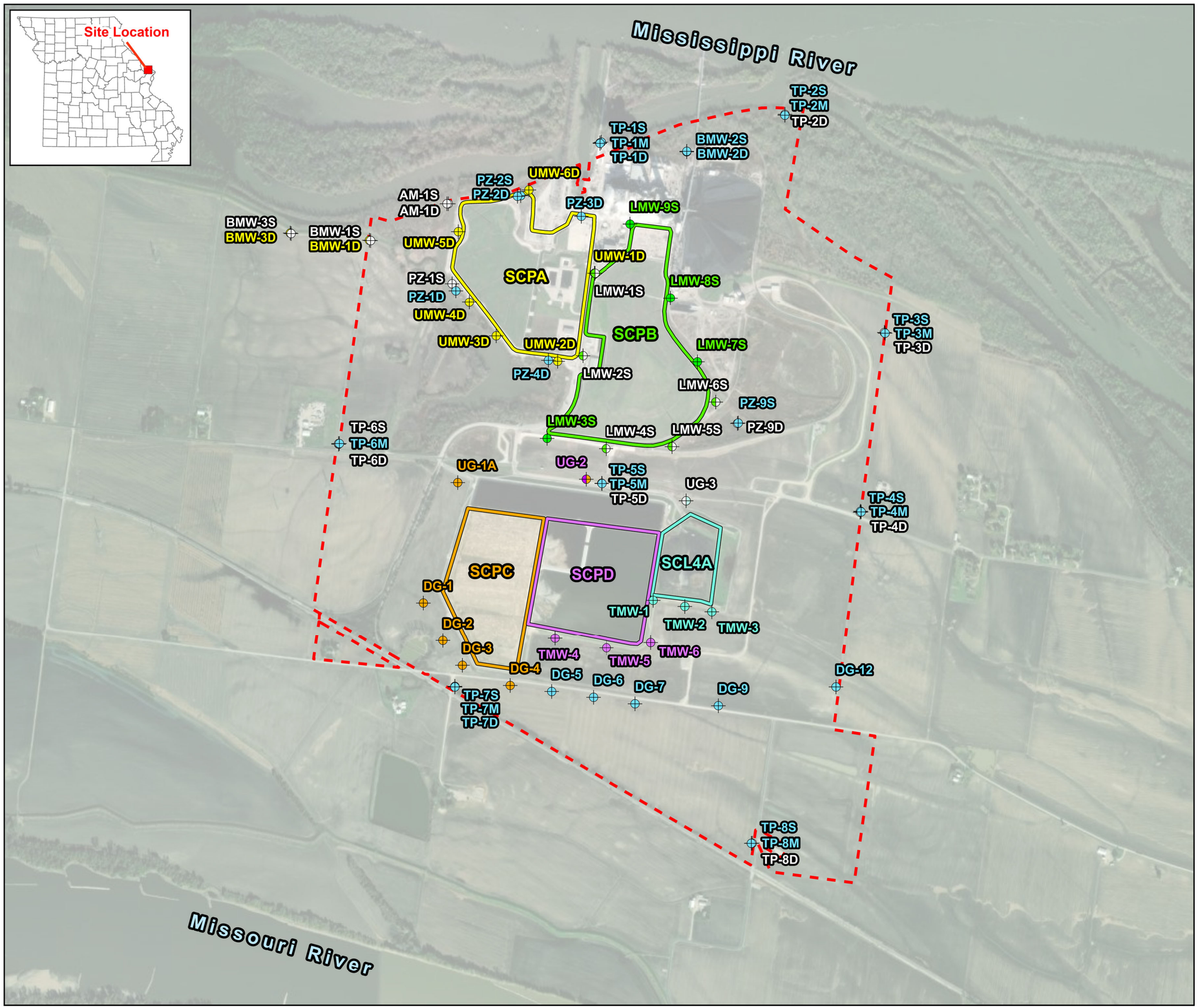
# Table 1
# November 2024 Detection Monitoring Results
# SCPD Surface Impoundment
# Sioux Energy Center, St. Charles County, MO

| | | BACKGROUND | | GROUNDWATER MONITORING WELLS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYTE | UNITS | BMW-1S | BMW-3S | Prediction Limit UG-2 | UG-2 | Prediction Limit TMW-4 | TMW-4 | Prediction Limit TMW-5 | TMW-5 | Prediction Limit TMW-6 | TMW-6 |
| November 2024 Detection Monitoring Event | | | | | | | | | | | |
| DATE | NA | 11/20/2024 | 11/20/2024 | NA | 11/14/2024 | NA | 11/19/2024 | NA | 11/19/2024 | NA | 11/19/2024 |
| pH | SU | 6.57 | 6.72 | 6.29 - 7.50 | 7.08 | 6.585-7.26 | 7.07 | 6.642-7.223 | 6.91 | 6.59-7.093 | 6.63 |
| BORON, TOTAL | µg/L | 61.9 J | 57.3 J | 277.7 | 112 | 122.2 | 100 | 116.0 | 72.5 J | 131.8 | 106 |
| CALCIUM, TOTAL | µg/L | 175,000 | 113,000 | 143,772 | 90,800 | 146,033 | 116,000 | 156,060 | 99,800 | 179,541 | 133,000 |
| CHLORIDE, TOTAL | mg/L | 14.2 | 13.1 | 93.74 | 26.5 | 3.216 | 2.4 | 2.435 | 1.5 | 11.02 | 5.1 |
| FLUORIDE, TOTAL | mg/L | ND | ND | 0.34 | 0.29 | 0.48 | 0.43 | 0.6744 | 0.40 J | 0.37 | 0.30 J |
| SULFATE, TOTAL | mg/L | 37.1 | 17.1 | 93.63 | 29.4 | 44.43 | 58.1 | 46.12 | 83.9 | 51.85 | 44.5 |
| TOTAL DISSOLVED SOLIDS | mg/L | 613 | 413 | 657.3 | 409 | 571 | 484 | 600.6 | 405 | 719.8 | 556 |
| Febuary 2025 Verification Sampling Event | | | | | | | | | | | |
| DATE | NA | | | | | | 2/7/2025 | | 2/7/2025 | | |
| pH | SU | | | | | | | | | | |
| BORON, TOTAL | µg/L | | | | | | | | | | |
| CALCIUM, TOTAL | µg/L | | | | | | | | | | |
| CHLORIDE, TOTAL | mg/L | | | | | | | | | | |
| FLUORIDE, TOTAL | mg/L | | | | | | | | | | |
| SULFATE, TOTAL | mg/L | | | | | | 76.0 | | 56.2 | | |
| TOTAL DISSOLVED SOLIDS | mg/L | | | | | | | | | | |

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.
7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

Prepared By: GTM
Checked By: JDQ
Reviewed By: JSI

# Figures




TITLE

# SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

**Legend**

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Unlined Bottom Ash Surface Impoundment (Closed)
- SCPB - Lined Fly Ash Surface Impoundment (Closed)

**Utility Waste Landfill Cells**

- SCL4A - Dry CCR Disposal Area
- SCPC - FGD Surface Impoundment (Closed)
- SCPD - FGD Surface Impoundment

**Monitoring Well Networks**

- Corrective Action Monitoring Well
- SCPA Detection and Assessment Monitoring Well
- SCPB and Corrective Action Monitoring Well
- SCPB Detection Monitoring Well
- SCPC Detection Monitoring Well
- SCPD and SCPC Detection Monitoring Well
- SCPD Detection Monitoring Well
- SCL4A and Corrective Action Monitoring Well
- SCL4A Detection Monitoring Well
- Monitoring Well Used for Water Level Elevation Measurements Only

**NOTES**

1. All boundaries and locations are approximate.
2. FGD - Flue Gas Desulfurization.
3. CCR - Coal Combustion Residuals.

**REFERENCES**

1. St Charles County, Missouri Geo-Data & Mapping Hub, Parcel Dataset, Updated April 2025.

0 500 1,000 2,000 3,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

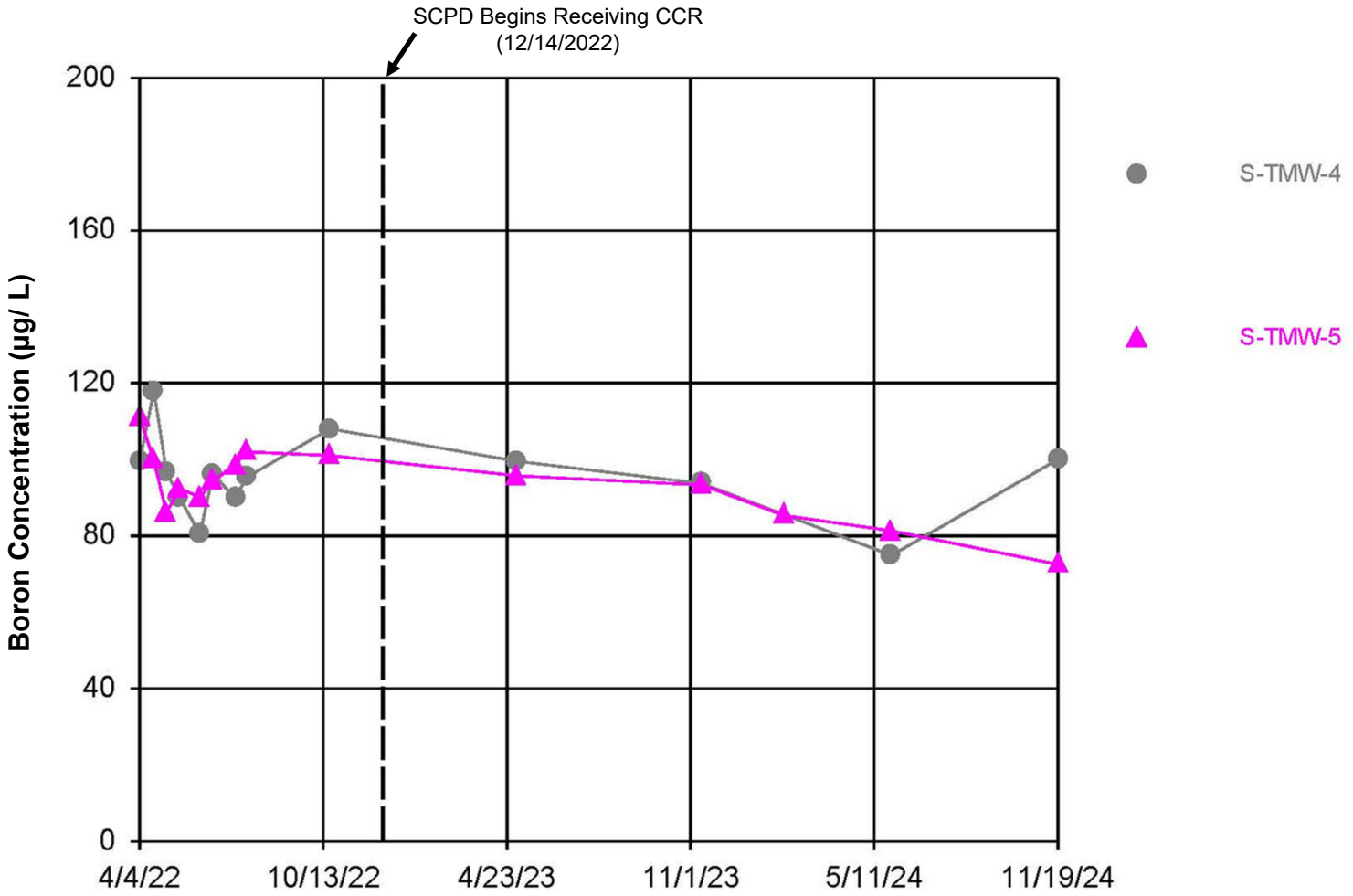
ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | JSI | YYYY-MM-DD | 2025-06-02 |
| PREPARED | GTM | PROJECT No. | 23009-25 |
| REVIEW | JSI | | |
| APPROVED | MNH | | |

**FIGURE 1**

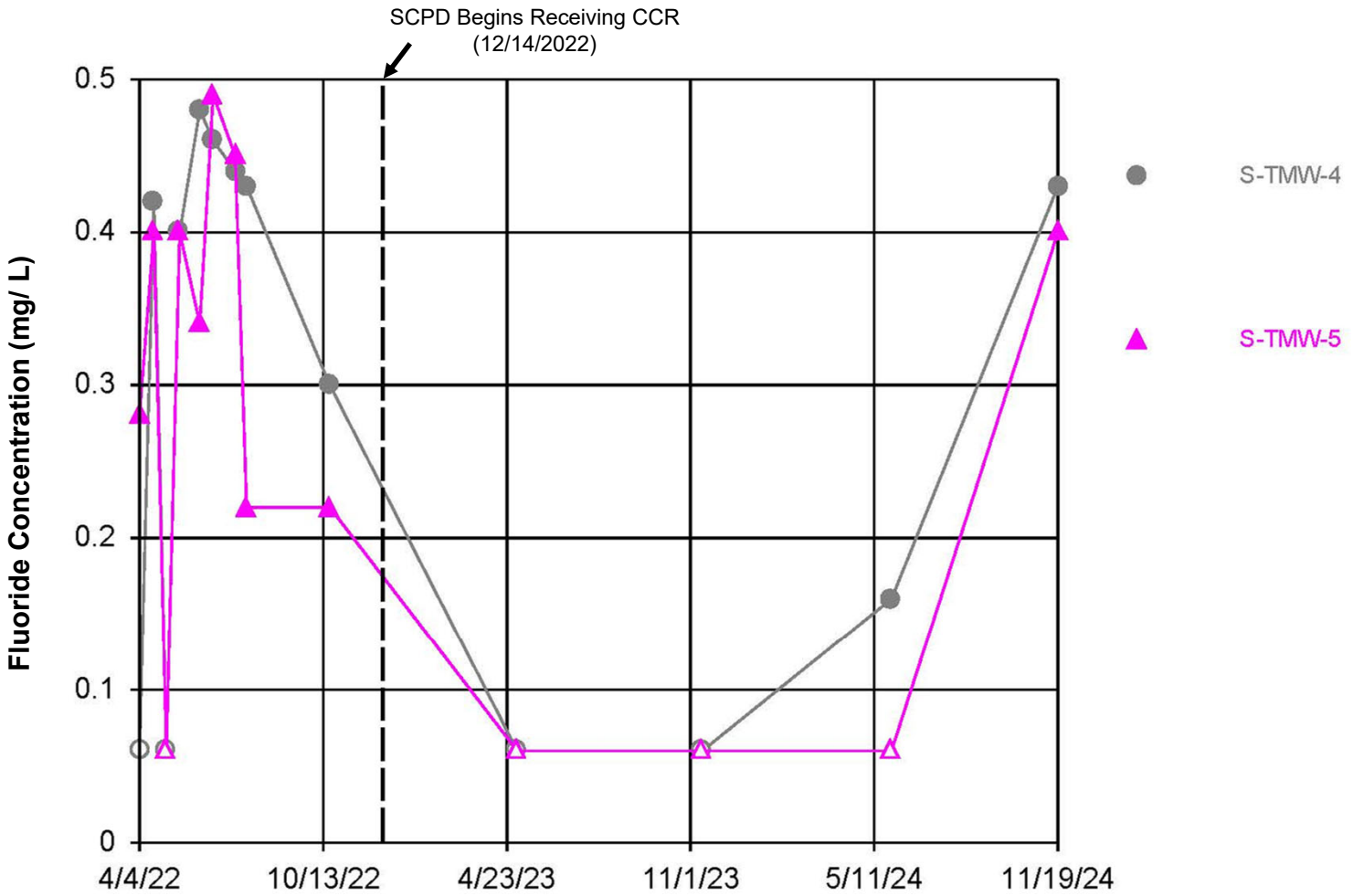
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: C:\Users\GrantMoney\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\2023ASD\Figure 1- Well Locations - No Extraction locations.aprx



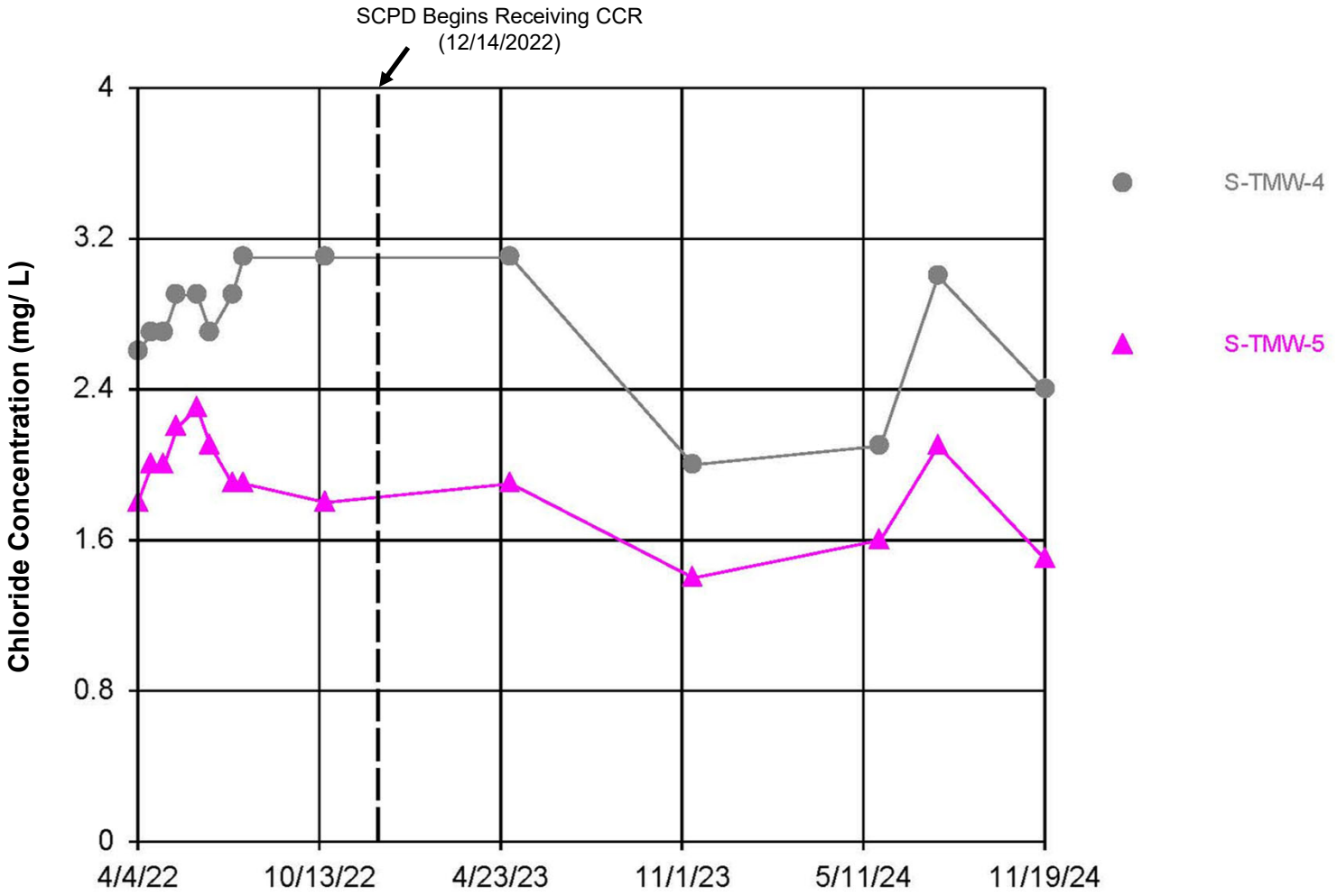

Notes
1) µg/L – Micrograms per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | TITLE | | |
|---|---|---|---|---|---|---|
| **AMEREN MISSOURI SIOUX ENERGY CENTER** | | | | **Timeseries Plot of Boron Concentrations at TMW-4 and TMW-5** | | |
| DRAWN | CHECKED | REVIEWED | DATE | Rev No. | JOB NO. | FIGURE |
| GTM | JTR | MNH | 2025-05-23 | NA | 23009-25 | **2** |



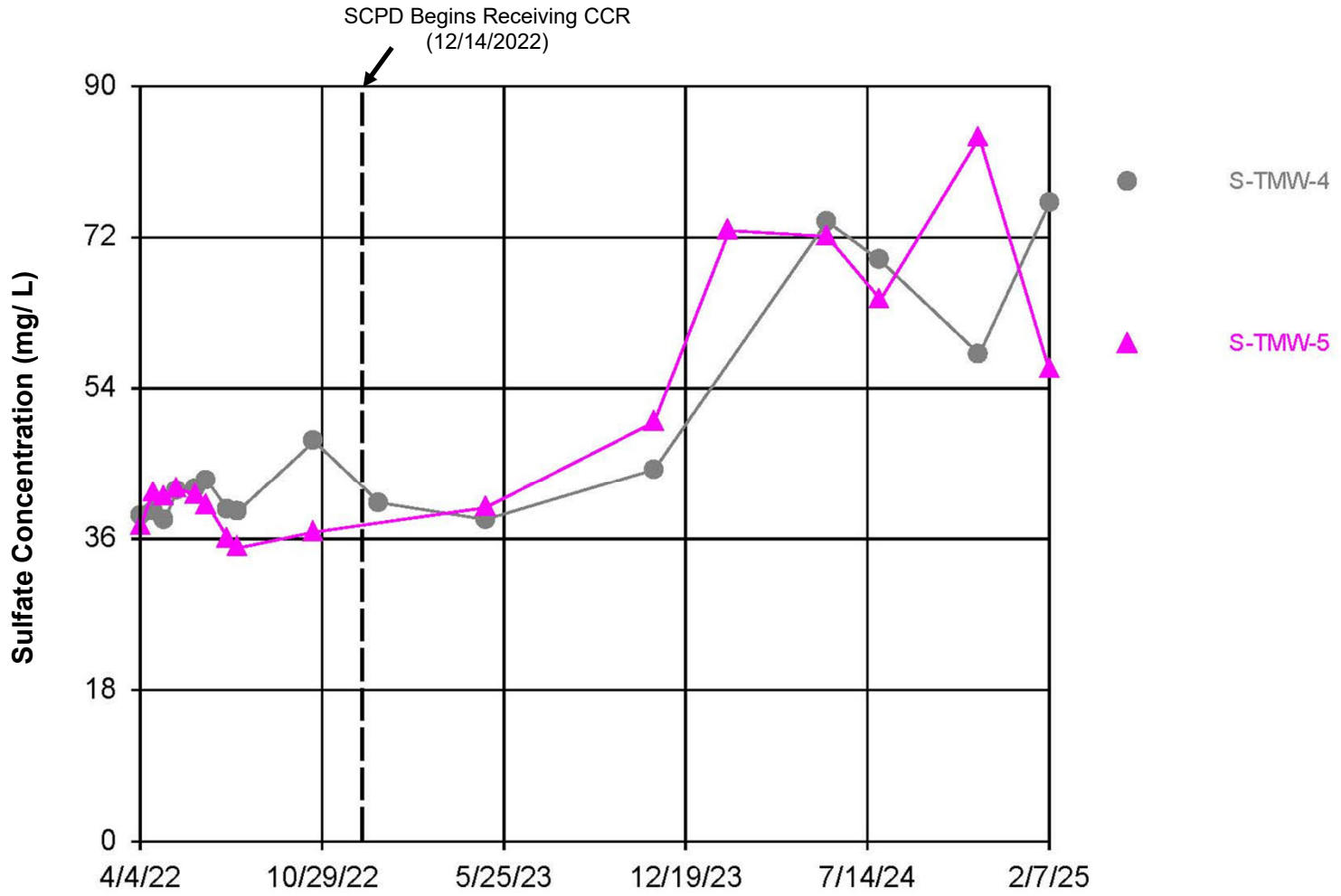

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | | TITLE | | |
|---|---|---|---|---|---|---|---|
| **AMEREN MISSOURI SIOUX ENERGY CENTER** | | | | | **Timeseries Plot of Fluoride Concentrations at TMW-4 and TMW-5** | | |
| DRAWN | CHECKED | REVIEWED | DATE | | Rev No. | JOB NO. | FIGURE |
| GTM | JTR | MNH | 2025-05-23 | | NA | 23009-25 | **3** |



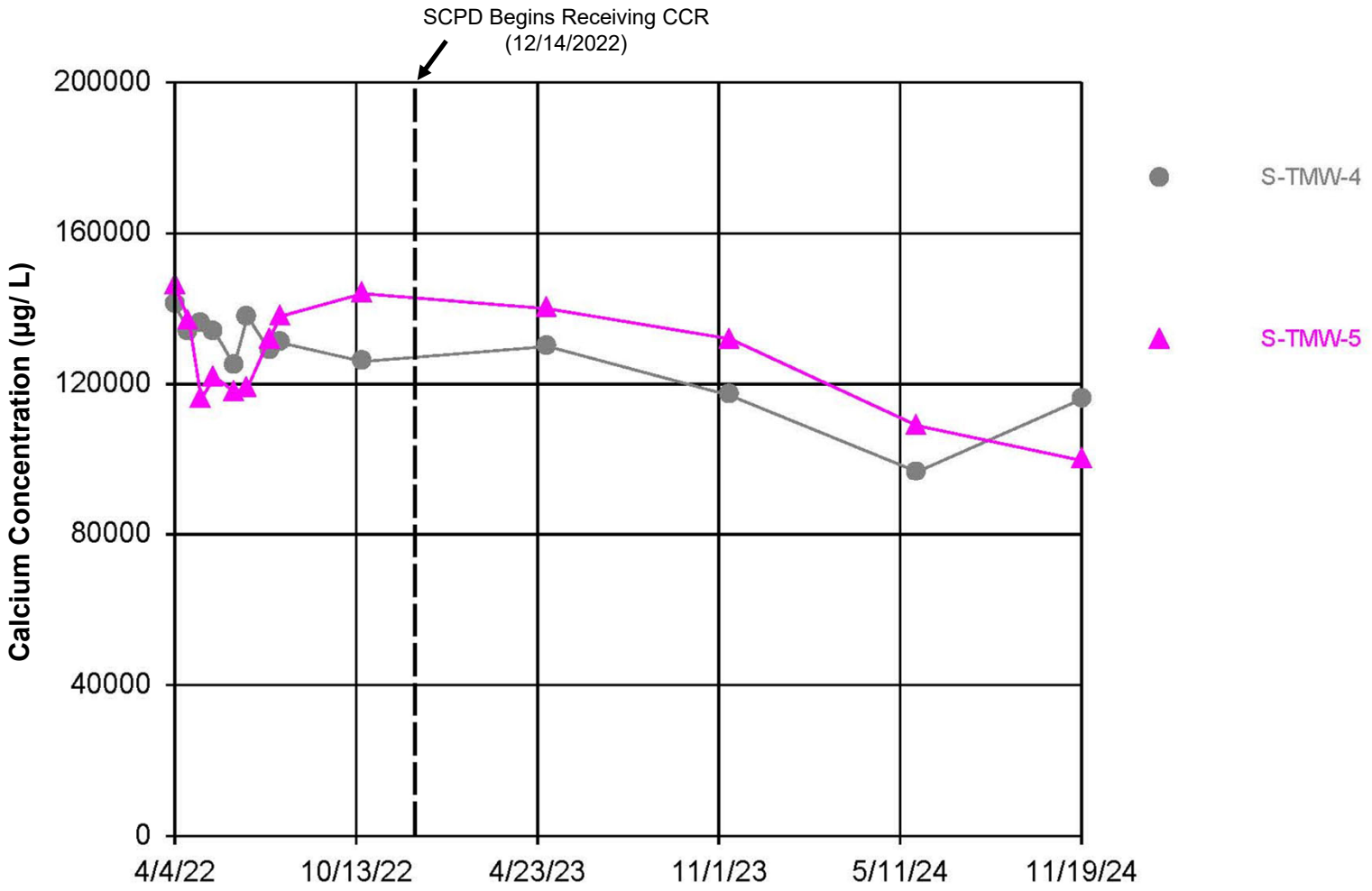

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | TITLE |
|---|---|---|---|---|
| **AMEREN MISSOURI**<br>**SIOUX ENERGY CENTER** | | | | **Timeseries Plot of Chloride Concentrations at TMW-4 and TMW-5** |
| DRAWN<br>GTM | CHECKED<br>JTR | REVIEWED<br>MNH | DATE<br>2025-05-23 | Rev No.<br>NA / JOB NO.<br>23009-25 / FIGURE<br>**4** |



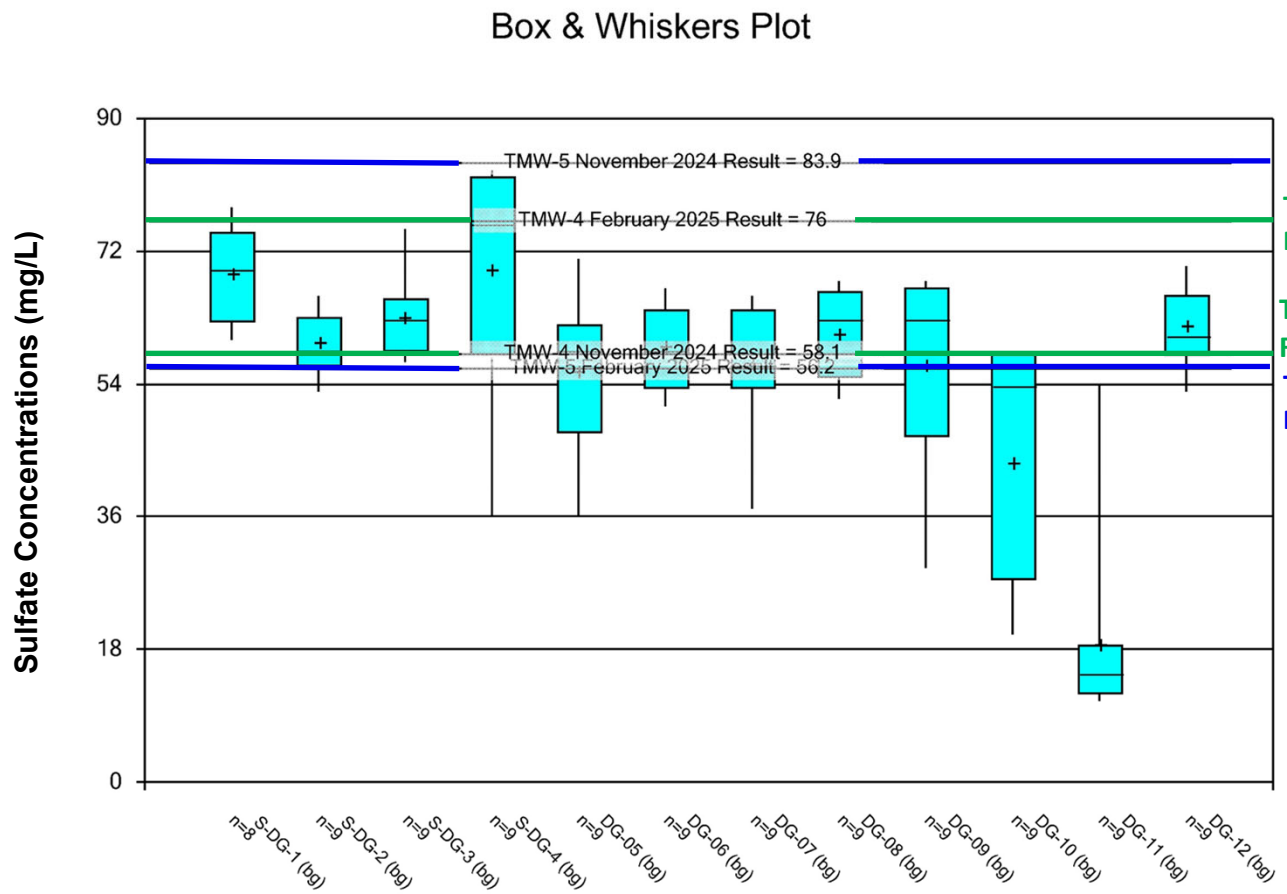

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | TITLE | | |
|---|---|---|---|---|---|---|
| **AMEREN MISSOURI SIOUX ENERGY CENTER** | | | | **Timeseries Plot of Sulfate Concentrations at TMW-4 and TMW-5** | | |
| DRAWN | CHECKED | REVIEWED | DATE | Rev No. | JOB NO. | FIGURE |
| GTM | JTR | MNH | 2025-05-23 | NA | 23009-25 | **5** |




Notes
1) µg/L – Micrograms per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | TITLE | | |
|---|---|---|---|---|---|---|
| **AMEREN MISSOURI SIOUX ENERGY CENTER** | | | | **Timeseries Plot of Calcium Concentrations at TMW-4 and TMW-5** | | |
| DRAWN | CHECKED | REVIEWED | DATE | Rev No. | JOB NO. | FIGURE |
| GTM | JTR | MNH | 2025-05-23 | NA | 23009-25 | **6** |




**TMW-5 November 2024 Sulfate Result (83.9 mg/L)**

**TMW-4 February 2025 Sulfate Result (76.0 mg/L)**

**TMW-4 November 2024 Sulfate Result (58.1 mg/L)**

**TMW-5 February 2025 Sulfate Result (56.2 mg/L)**

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.
4) UWL – Utility Waste Landfill.
5) J – Result is an estimated value.
6) Data used for box and whisker plot was collected between June 27, 2008 and May 19, 2010.

| CLIENT/PROJECT | | | | | TITLE |
|---|---|---|---|---|---|
| AMEREN MISSOURI<br>SIOUX ENERGY CENTER | | | | | Pre-CCR Placement Sulfate Concentrations – State UWL Downgradient Monitoring Wells |
| DRAWN | CHECKED | REVIEWED | DATE | | |
| GTM | JTR | MNH | 2025-05-23 | | |
| | | | | Rev No. NA | JOB NO. 23009-25 |
| | | | | | FIGURE 7 |

# Appendix C

## Alternative Source Demonstration – May 2025 Sampling Event

REPORT

# SCPD – Alternative Source Demonstration

**Sioux Energy Center, St. Charles County, Missouri, USA**

**December 24, 2025**

**Project Number: 23009-25**

## Submitted to:

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# Table of Contents



## TABLES



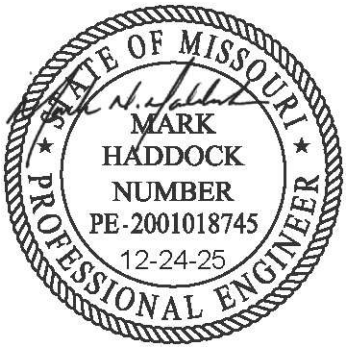
## FIGURES

# 1.0 CERTIFICATION STATEMENT

This *SCPD – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA* has been prepared to comply with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule) under the direction of a licensed professional engineer with Rocksmith Geoengineering, LLC.

I hereby certify that this *SCPD – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA* located at 8501 Missouri 94, West Alton, Missouri 63386 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

**Rocksmith Geoengineering, LLC.,**

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# 2.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCPD – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for two Statistically Significant Increase (SSIs) identified for Ameren Missouri's (Ameren's) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) SCPD (Cell 2). This document satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSIs were the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

# 3.0 SITE DESCRIPTION AND BACKGROUND

Ameren owns and operates the SEC in St. Charles County, Missouri located approximately 12 miles west-northwest of the confluence of the Mississippi and Missouri Rivers. **Figure 1** depicts the site location and layout, including the location of SCPD. The SEC is approximately 1,025 acres and is located in the floodplain between the Mississippi and Missouri Rivers. The SEC is bounded to the north by wooded areas associated with the Mississippi River; to the south by a railroad; and to the east and west by agricultural fields.

## 3.1 Geological and Hydrogeological Setting

Hydrogeologically, the SCPD lies between the Mississippi River to the north and the Missouri River to the south. Flow and deposition from these rivers have resulted in thick alluvial deposits that lie unconformably on top of bedrock. These alluvial deposits range from approximately 100 to 130 feet in thickness and comprise the uppermost aquifer, called the alluvial aquifer. Overall, this aquifer is described as a fining upwards sequence of stratified sands and gravels with varying amounts of silt and clay. Drilling in the alluvial aquifer identified different sub-units, including floodplain deposits, natural levee deposits, and channel deposits along with volumetrically less important loess deposits. Grain sizes of these alluvial deposits are variable.

Beneath the alluvial aquifer lies the bedrock aquifer. Bedrock in this region includes Mississippian-aged rocks of the Meramecian Series. Formations include primarily limestone, dolomite, and shale and are comprised of the Salem Formation overlying the Warsaw Formation and the Burlington-Keokuk Formation.

## 3.2 Utility Waste Landfill – SCPD

UWL Cell 2 is referred to by Ameren as the SCPD, or "Gypsum Pond" Cell 2. The SCPD is approximately 36 acres in size and is located south of the generating plant on the south side of Highway 94 (**Figure 1**). The CCR Unit began operation on December 14, 2022 and manages CCR from the SEC Wet Flue-Gas Desulfurization System (WFGD).

The WFGD process occurs after the removal of slag and fly ash. A crushed limestone ($CaCO_3$) mix is introduced into the boiler flue gas flow. The limestone reacts with sulfur dioxide ($SO_2$) in the flue gas and produces 'synthetic' gypsum (calcium sulfate dihydrate ($CaSO_4 * 2H_2O$)). The resultant gypsum material was formerly wet sluiced from the plant across the highway to the SCPC but has been wet sluiced to SCPD since December 14, 2022. Once there, the gypsum material is dewatered by gravity, with the sluice conveying recycled water back to the WFGD for reuse. The primary soluble constituents of the gypsum CCR are sulfate, calcium, chloride, and sodium (Gredell and Reitz & Jens 2014).

The SCPD is bounded immediately on the west by the closed SCPC surface Impoundment (UWL Cell 1), northeast by the SCL4A landfill cell (UWL Cell 4a), the north by the UWL recycle pond, and south/southeast by low lying agricultural floodplain. The perimeter berm surrounding the SCPD is constructed to an elevation of 446 feet above mean sea level (MSL), which is approximately 5 feet above 100-year flood elevation of 441.2 feet MSL and about 12 to 18 feet above the surrounding low-lying farmland. This berm elevation is equivalent to the adjacent SCPC, SCL4A, and UWL recycle pond areas. Additionally, the SCPD is lined with a bottom composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than $1 X 10^{-7}$ centimeters per second (cm/sec) overlain by a 60-mil flexible high-density polyethylene (HDPE) geomembrane liner. This liner system has a base elevation (top of liner/base of CCR) of approximately 432 feet MSL at its lowest point.

A groundwater monitoring well network was installed in 2007 and 2008 in order to permit the UWL construction. This monitoring well network was approved by the Missouri Department of Natural Resources (MDNR) and consists of 16 monitoring wells ringing the current and proposed future extents of the UWL (**Figure 1**). These monitoring wells are installed in the uppermost portions of the alluvial aquifer, just below the seasonally low elevation for groundwater. Quarterly groundwater samples have been collected in these monitoring wells since June 2008 for the Missouri UWL parameters. Placement of WFGD materials in the SCPD started on December 14, 2022.

## 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, prior to the initial receipt of CCR on December 14, 2022 the following were completed: (1) a groundwater monitoring well system was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, (3) a Groundwater Monitoring Plan (GMP) was prepared recording the design, installation, development, sampling procedures, as well as statistical methods, and placed in the owner's operating record, and (4) eight baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of CCR Rule.

The groundwater monitoring system for the SCPD consists of six monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on **Figure 1**. One monitoring well (UG-2) was installed by Gredell Engineering Resources, Inc. (Gredell) in December 2007 as a part of the Missouri UWL state monitoring program. This monitoring well is used in both the SCPC and SCPD groundwater monitoring well networks. The background monitoring wells (BMW-1S and BMW-3S) were installed by Golder Associates Inc. (Golder) in 2016 for CCR Rule groundwater monitoring purposes. Three monitoring wells (TMW-4, TMW-5, and TMW-6) were installed in March 2022 to the south and southeast of the SCPD by WSP USA, Inc. (WSP) specifically for CCR groundwater monitoring of the SCPD. More information on the design and installation of the monitoring wells is provided in the SCPD GMP (WSP 2022) and the SCPD 2022 Annual Report (WSP 2023).

Between May 2016 and June 2017, eight baseline sampling events were completed for the existing monitoring wells used to monitor the SCPD (UG-2, BMW-1S, and BMW-3S). Eight baseline sampling events were also completed between March and October 2022 for TMW-4, TMW-5, and TMW-6. After baseline sampling, the first Detection Monitoring event was completed in May 2023. The following Appendix III constituents were analyzed during Detection Monitoring:

- Boron
- Calcium
- Chloride
- pH
- Sulfate
- Total Dissolved Solids (TDS)
- Fluoride

In January 2023, background results from the eight baseline sampling events were used to calculate statistical upper prediction limits (UPLs) for wells TMW-4, TMW-5, and TMW-6. Since monitoring well UG-2 is included in both the SCPC and SCPD monitoring networks, statistical limits for this well follow those used for SCPC monitoring, which were updated in March 2024 (Rocksmith 2024). These UPLs were then compared to the Detection Monitoring results from the May 2023 sampling event and subsequent sampling events. If a result from the Detection Monitoring event is higher than the calculated UPL, it is classified as an initial exceedance, and a verification sample is then collected and tested in accordance with the SCPD Statistical Analysis Plan (SAP). In May 2025, two initial exceedances were identified: sulfate at TMW-5 and chloride at TMW-6. Verification sampling in July confirmed each initial exceedance as an SSI. Results from this sampling event are provided in **Table 1**.

# 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

Monitoring wells TMW-5 and TMW-6 are screened in the upper portion of the alluvial aquifer, just below the average seasonal low elevation for groundwater. As shown in **Figure 1**, TMW-5 and TMW-6 are located immediately south of the SCPD. The SCPD is located south of the generating plant, Highway 94, and the two surface impoundments near the plant (SCPA and SCPB), and north of Dwiggins Road.

Based on Rocksmith's review of the pre-disposal data (discussed in Section 3.2 above), as well as our comparison of the pre-disposal data with the results from the eight CCR-rule baseline events, groundwater in some areas around the SCPD contains low-level pre-existing impacts from CCR that pre-date SCPD construction and operation. As a result of these pre-existing impacts, the SCPD statistical analysis plan uses intrawell UPLs to determine SSIs. Intrawell UPLs are calculated from historical data within a particular well, and not by pooling data from the background wells, such that individual limits are calculated for each constituent in each well in the monitoring program. A summary table of the May 2025 SSIs is provided in **Table 2.**

**Table 2 – Review of Statistically Significant Increases**

| Constituent | Well ID | Current UPL | Range of Values Prior to May 2025 Sampling Event | May 2025 Result | July 2025 Result |
|---|---|---|---|---|---|
| Sulfate (mg/L) | TMW-5 | 46.12 | 34.9 – 83.9 | 81.8 | 89.4 |
| Chloride (mg/L) | TMW-6 | 11.02 | 1.3 – 28.2 J | 19.4 J | 15.0 |
| Sulfate (mg/L) | Background Wells (BMW-1S & BMW-3S) | 61.1 | 12.3 – 61.1 | 35.1 & 24.5 | NS |
| Chloride (mg/L) | Background Wells (BMW-1S & BMW-3S) | 16.8 | 1.2 – 16.8 | 11.4 & 10.6 | NS |

Notes:
1) mg/L – milligrams per liter.
2) µg/L – micrograms per liter.
3) UPL – Upper Prediction Limit. UPLs calculated using Sanitas™ software.
4) ND – Non-Detect.
5) J – Result is an estimated value.
6) NS – Not sampled.

# 5.0 EVIDENCE OF SSIS FROM ALTERNATIVE SOURCE

Several different lines of evidence indicate that the SSI is not the result of a release from the SCPD and that the SSI originates from an alternative source. The following bullets summarize the different lines of evidence that support this ASD:

- Key FGD indicator parameters such as boron and fluoride are not elevated when comparing recent results with baseline sampling results collected before CCR placement in the SCPD.
- Historical chloride and sulfate concentrations predating CCR placement in the SCPC, SCPD, and SCL4A (prior to July 30, 2010) in monitoring wells near TMW-5 and TMW-6 exhibit a high degree of variability, with some concentrations exceeding recent results at these wells.
- Sulfate concentrations in the Missouri River south of the SCPD exceed those measured at TMW-5 and the river recharges the groundwater aquifer.
- Chloride concentrations in the Missouri River south of the SCPD and the Mississippi River north of the SCPD exceed those measured at TMW-6.
- When plotted on Stiff diagrams, the geochemical signatures of groundwater samples collected prior to CCR disposal are very similar to May 2025 signatures at TMW-5 and TMW-6, and these signatures are markedly different from FGD leachate material stored in the SCPD.

- Current UPLs for each of these wells were calculated from only eight baseline sampling events that may not have captured a full range of naturally carrying concentrations, prior to surface disturbances relating to SCPD construction.
- Construction documents for the SCPD indicating the 60-mil high-density polyethelyne (HDPE) geomembrane liner and a 2-foot thick clay barrier, verified by quality assurance testing during construction.

## 5.1 CCR Indicators

Several types of CCR byproducts are generated by coal-fired power plants. The different types of CCR typically display distinct geochemical signatures and indicator parameters. **Table 3** below describes the different types of CCRs and their typical indicator parameters (USEPA 2018, EPRI 2011, EPRI 2012, and EPRI 2017).

**Table 3 – Types of CCR and Typical Indicator Parameters**

| Type of CCR | Description of CCR (USEPA 2018) | Key Indicators (EPRI 2011, 2012, 2017) |
|---|---|---|
| **Fly Ash** | Fine grained, powdery material composed mostly of silica made from the burning of finely ground coal in the boiler. | • Boron<br>• Molybdenum<br>• Lithium<br>• Sulfate<br>• Bromide<br>• Potassium<br>• Sodium<br>• Fluoride |
| **Boiler Slag / Bottom Ash** | Molten bottom ash from the slag tap and cyclone type furnaces that turns into pellets that have a smooth glassy appearance after quenching with water. | |
| **Flue Gas Desulfurization Material (FGD)** | A material leftover from the process of reducing sulfur dioxide emissions from a coal-fired boiler that can be a wet sludge consisting of calcium sulfite or calcium sulfate or a dry powdered material that is a mixture of sulfites and sulfates. | • Sulfate<br>• Fluoride<br>• Calcium<br>• Boron<br>• Bromide<br>• Chloride |

Notes:
1) Fly ash and boiler slag/bottom ash typically have the same indicator parameters.
2) Definitions from USEPA website, available at https://www.epa.gov/coalash/coal-ash-basics.
3) Key indicators from EPRI 2011, 2012, and 2017 as well as Gredell and Reitz & Jens, 2014.

As described above, the SCPD has historically received FGD type wastes that are managed at the SEC.

## 5.2 Site Specific Key CCR Indicators

To be a key CCR Indicator parameter for a specific site, a constituent should be present in relatively high concentrations in the leachate (CCR porewater) when compared to background or other sources (nearby rivers, etc.), not be a common anthropogenic contaminant, and be mostly non-reactive and mobile in the site hydrogeological environment (EPRI 2012). In 2012, EPRI investigated which constituents are the best indicator parameters for coal ash impacts as outlined in **Table 1**. Of the key indicators listed in **Table 1** for flue gas desulfurization material, sulfate, fluoride, calcium, boron, and chloride are regularly sampled as part of the CCR Rule. Testing for bromide has not been completed at this site.

**Table 2** provides a snapshot of the concentrations present onsite in background groundwater, Mississippi River, Missouri River, SCPA porewater, and SCPD leachate for the constituents sampled on the key indicator list for FGD material.

**Table 4 – Summary of FGD Impact Indicator Parameters at the Sioux Energy Center**

| Constituent (Units) | | Back-ground | Mississippi River[1] | Missouri River[1] | SCPA Porewater | SCPD Leachate | Advantages and Caveats as Key Indicator (from EPRI 2012) |
|---|---|---|---|---|---|---|---|
| Boron (µg/L) | Minimum | 42.4 | 27.1 | 110 | 348 | 239,000 | Mobile indicator constituent for unwashed FGD gypsum. Concentrations for washed gypsum may be too low to be useful. |
| | Average | 91.4 | 36.4 | 112.3 | 53,266 | | |
| | Maximum | 240 | 59.9 | 117 | 111,000 | | |
| Sulfate (mg/L) | Minimum | ND (<0.23) | 29.9 | 188 | 48.5 | 5,820 | High concentrations expected in both washed and unwashed FGD gypsum. Commonly analysed. Very mobile in all hydrogeologic environments. Less useful in strongly reducing environments where sulfate can be reduced to hydrogen-sulfide gas. |
| | Average | 30.07 | 34.08 | 192.1 | 1,088 | | |
| | Maximum | 61.1 | 40.5 | 196 | 2,080 | | |
| Fluoride (mg/L) | Minimum | ND (<0.086) | 0.16 | 0.43 | 0.22 | 68.0 | Mobile and non-reactive in common hydrogeologic environments. Assure that leachate concentration is higher than background, particularly for washed gypsum. |
| | Average | 0.266 | 0.196 | 0.4435 | 1.142 | | |
| | Maximum | 0.46 | 0.24 | 0.46 | 2.9 | | |
| Calcium (µg/L) | Minimum | 97,100 | 42,500 | 63,000 | 73,400 | 911,000 | High concentrations expected in both washed and unwashed FGD gypsum. Understanding of carbonate chemistry necessary to assure that precipitation or dissolution does not affect downgradient concentrations. |
| | Average | 129,209 | 50,255 | 64,385 | 409,680 | | |
| | Maximum | 184,000 | 58,500 | 65,400 | 825,000 | | |
| Chloride (mg/L) | Minimum | 1.9 | 22.2 | 23.3 | 20.5 | 7,390 | Mobile indictor constituent for unwashed FGD gypsum. Concentrations may be very high if transport water is recirculated. Concentrations for washed gypsum may be too low to be useful. |
| | Average | 8.9 | 27.06 | 23.48 | 24.34 | | |
| | Maximum | 16.8 | 41.0 | 23.9 | 27.1 | | |

Notes:

1) Unit abbreviations - mg/L – milligrams per liter, µg/L – micrograms per liter
2) ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
3) SCPA porewater samples collected by Golder Associates in January 2018.
4) A single leachate sample was collected directly from the SCPD by Gredell Engineering Resources, Inc. in December 2023. The SCPD currently collects WFGD material that was once sluiced to the SCPC until December 2022.

Boron has previously been attributed as a primary indicator for CCR impacts at the site, particularly for bottom and fly ash impacts. As shown in **Table 4**, the FGD leachate material contained in the SCPD (as well as the adjacent SCPC) contains significantly higher concentrations of key indicator parameters than other potential sources at the SEC. The following describes the practicality of each of the key FGD indicators for determining CCR impacts from the SCPD:

- Boron, which is typically the most mobile of CCR-related constituents, would be expected to have the most notable increase if there were impacts from the SCPD (or adjacent SCPC). Of the key FGD indicators listed above, the boron concentration in SCPD leachate is greatest relative to background groundwater at the site (2,541 times higher concentration in SCPD leachate than average background groundwater). Other key FGD

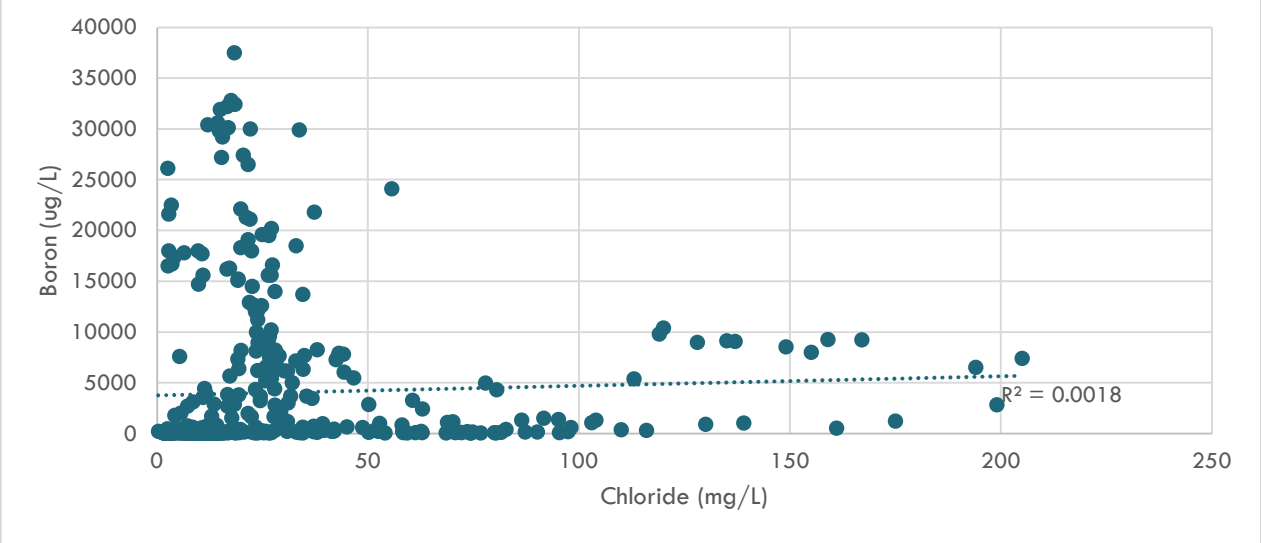
[1] Mississippi and Missouri River samples collected September 21 & 22, 2017 and May 8, 2018. Results are available on Ameren's public website at https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports/sioux-energy-center.

indicators are lower in terms of their relative concentrations in leachate compared to background groundwater. Additionally, boron has low concentrations in the adjacent Missouri and Mississippi Rivers; therefore, elevated boron is likely from a CCR unit, whether it be the SCPA, SCPB, SCPC, SCPD, or SCL4A.

- Fluoride may be a very good FGD indicator parameter because it is typically mobile in most geological environments and is present in SCPD leachate at a level 248 times greater than average background groundwater concentrations. Background fluoride concentrations are also similar to Mississippi and Missouri River concentrations; therefore, an apparent source of increased fluoride could be from FGD impacts. Fluoride concentrations are also much higher in FGD leachate than SCPA porewater, indicating that if increased fluoride is occurring, it would be suspected that the impacts may be from FGD and not fly ash or bottom ash as managed by the SCPA.
- Chloride may be a good FGD indicator parameter because it is mobile in most geological environments and is present in SCPD leachate at a level 856 times greater than average background groundwater concentrations. However, chloride concentrations can be greatly affected by the use of road salt (NaCl) for road deicing. Chloride concentrations for the DG-xx wells installed south of the UWL were measured as high as 125 mg/L prior to any placement of CCR materials in the UWL (prior to June 30, 2010). Additionally, surface water samples collected from the Mississippi and Missouri Rivers near the SEC average approximately 27 and 23 mg/L of chloride, respectively. Therefore, if chloride concentrations are significantly greater than these sources (greater than approximately 125 mg/L), then chloride can be a good indicator parameter for FGD impacts.

  **Figure 2** compares boron and chloride results collected since 2020 during semiannual CCR Rule sampling events across the SEC. As shown in the figure, there is very little correlation ($R = 0.042$; $R^2 = 0.0018$) between chloride and boron concentrations in groundwater across the SEC. This lack of correlation demonstrates that chloride is not a reliable indicator of CCR impacts across the SEC, as it behaves largely independently to boron (the primary CCR indicator) at the SEC. Therefore, the presence of elevated chloride at a well, on its own, is not indicative of CCR impacts, and its concentrations should be evaluated in conjunction with key FGD and CCR impact parameters such as boron and fluoride.

**Figure 2 – Historical Boron vs. Chloride Concentrations at SEC CCR Rule Monitoring Wells**




- Sulfate may be a good FGD indicator parameter as well because it is mobile in most geological environments and is present at a level 187 times greater in SCPD leachate than in average background groundwater concentrations. However, based on surface water sampling near the SEC, sulfate concentrations in the Mississippi and Missouri Rivers north and south of the facility reach up to approximately 196 mg/L. Therefore, if sulfate concentrations are significantly greater than concentrations in the nearby rivers and background groundwater (greater than approximately 200 mg/L), then it may be a

good indicator for CCR indicator for fly ash, bottom ash, or FGD impacts. At concentrations lower than this, sulfate is less effective as an FGD indicator at the SEC.

- Calcium may be a useful FGD indicator parameter; however, it is not always mobile in all geological environments and an understanding of carbonate chemistry necessary to assure that precipitation or dissolution does not affect downgradient concentrations. Additionally, calcium concentrations are only 7 times greater in SCPD leachate than average background groundwater at the site. Significant increases in calcium may indicate FGD impacts; however, increases would be expected to be less notable than other key indicators, such as boron and fluoride.

## 5.3 Concentrations of Key FGD Indicators in Monitoring Wells with SSI

The SCPC was permitted to receive FGD material beginning in July 2010, and receipt of FGD material ceased on December 14, 2022, when the SCPD began receiving FGD material. Monitoring wells TMW-5 and TMW-6 were installed in March 2022 and since that time, concentrations of boron, fluoride, and calcium, key FGD indicators, have remained steady or decreased. **Figures 3-9** display historical concentrations of each of the key indicator parameters of FGD impacts at downgradient SCPD monitoring wells. As displayed in the figures, TMW-5 and TMW-6 do not show increases in the two most effective FGD indicators at the site (boron and fluoride) following CCR placement in the SCPD. This behavior of key FGD indicators at each of these wells is strong evidence that impacts from the SCPD are not occurring, and a source other than CCR is likely the cause of the SSIs.

## 5.4 Evaluation of the Statistically Significant Increase of Sulfate at TMW-5

As discussed in Section 5.2, sulfate may be a good FGD indicator parameter because it is mobile in most geological environments. However, sulfate concentrations as high as 196 mg/L were measured during surface water sampling of the Missouri River south of the SEC. Therefore, when sulfate concentrations observed in monitoring wells are significantly greater than concentrations in nearby rivers and background groundwater (greater than approximately 200 mg/L), then it may be a good indicator for CCR indicator for fly ash, bottom ash, or FGD impacts. At concentrations lower than this, sulfate is less effective as an FGD indicator at the SEC, as there are naturally occurring concentrations in a similar range interacting with the local alluvial aquifer.

The time series plot on **Figure 6** shows variability in sulfate concentrations at the TMW wells south of the SCPD since the onset of baseline monitoring in April 2022. As displayed in the figure, during the eight baseline sampling events, sulfate concentrations ranged 34.9 to 42.0 mg/L at TMW-5. Baseline sampling was completed within a 7-month period from April 2022 through October 2022. Since the completion of baseline sampling, sulfate has ranged from 39.7 to 89.4 mg/L at TMW-5.

**Figure 8** displays a box and whisker plot of the sulfate concentrations observed at the DG-xx wells prior to the receipt of CCR in the SCPC, SCPD, and SCL4A (prior to 7/30/2010). These plots reflect the high natural variability of sulfate in the vicinity of the SCPD, prior to any potential impacts from CCR placed in the area. As shown in **Figure 8**, the May 2025 result at TMW-5 is within the range of sulfate concentrations at the DG-xx wells prior to CCR placement. Pre-CCR placement concentrations in these wells ranged from 11.0 to 83.0 mg/L; the upper end of this range is greater than the current sulfate UPL at TMW-5 (46.12 mg/L).

Based on these data, the variability in sulfate concentrations observed at downgradient monitoring wells over time is not a result of SCPD CCR influence on groundwater. Additionally, sulfate concentrations within the Missouri River to the south of the SEC averaged approximately 192 mg/L, as shown in **Table 4**, which is significantly greater than the sulfate SSI at TMW-5. The Missouri River is an alternative source of sulfate to the groundwater at the SEC and likely contributes to the sulfate variability at the site, especially during times of northward groundwater flow from the Missouri River towards the Mississippi River. The sulfate SSIs are most likely a result of natural geochemical variability within the aquifer caused by the variable river source loading to the aquifer.

## 5.5 Evaluation of the Statistically Significant Increase of Chloride at TMW-6

As discussed in Section 5.2, chloride can be a good indicator of FGD impacts to groundwater, especially when concentrations are significantly greater than those present in the Mississippi and Missouri Rivers (up to approximately 27 mg/L) and are greater than those present from nearby road salt application impacts (up to approximately 86 mg/L). The nearest public roadways to TMW-4, TMW-5, and TMW-6 are Highway 94, approximately 2,000 feet to the north, and Dwiggins Road, approximately 500 feet to the south. A paved CCR

haul road also exits to the north of UWL area, just south of Highway 94. Since the beginning of SCPD construction in 2022, there have been significant disturbances to surface conditions in the vicinity of these wells.


Equipment and material haul roads were built to the south and east of the SCPD in 2022, as well as a gravel parking lot to the south of the unit (shown inset aerial image taken 6/5/2023). In late 2023, a temporary gravel road associated closure of the SCPC and construction of the SCPD was built directly south of TMW-5 and TMW-6 (shown in the inset aerial image taken 4/16/2024). As of November 2024, the gravel road, parking lot, and temporary haul roads no longer exist; however, a permanent gravel road now exists inside the perimeter fence surrounding the SCPD, at the toe of the berm. Since the installation of these wells, surface conditions in their vicinity have been variable, and are not representative of surface conditions during baseline sampling. These changing surface conditions may contribute to geochemical variability observed within these shallow monitoring wells installed at an approximate depth of only 30 feet.

In May 2025, the chloride concentration at TMW-6 was 19.4 mg/L, and the concentration measured during the July 2025 verification sampling event was 15.0 mg/L. These values are just above the original calculated UPL of 11.02 mg/L for chloride, which was calculated based on eight baseline sampling events in 2022, during which time concentrations ranged from 1.3 to 9.6 mg/L. Further highlighting the variability of chloride at this well, data from October 2025 detection monitoring is available at the time of this report. Chloride at TMW-6 was measured at 4.3 mg/L, which is less than the UPL. There has not yet been an update to prediction limits for TMW-5 or TMW-6.

Chloride concentrations in shallow alluvial background monitoring wells located approximately 1 mile to the northwest of the SCPD (BMW-1S and BMW-3S) have ranged from 6.3 to 14.2 mg/L since their installation in 2016, with outliers at BWM-1S of 1.9 and 16.8 mg/L, and at BMW-3S at 7.6 mg/L. Based on baseline sampling, the initial background UPL for chloride was 12.34 mg/L at these shallow background wells. The current UPL as of the latest background updates (completed September 2023) is 16.8 mg/L, which is the limit currently used for the SCPB detection monitoring network. Chloride results through May 2025 at TMW-6 were similar to background concentrations. **Figure 5** displays the greater variability in chloride concentrations at TMW-6 compared to other downgradient SCPD monitoring wells, and the increased concentrations in May and July 2025 do not correspond with CCR placement in the SCPD.

To further investigate the geochemical variability of chloride in the UWL area, the historical data from the state UWL wells (located on the south side of the UWL, outside of the interpreted zone of impact from the SCPA) were reviewed. These UWL wells (labeled “DG-xx”) were installed and sampled on at least 8 occasions prior to the receipt of FGD in the SCPC. Each of these DG-xx monitoring wells are screened at approximately the same depth as TMW-6 in the shallow zone of the alluvial aquifer. **Figure 9** displays a box and whisker plot of the chloride concentrations for the DG-xx wells prior to the receipt of FGD in the SCPC (any CCR placement south of Highway 94). This figure shows notable variability in local groundwater chemistry that pre-dates CCR placement in the area. As displayed in **Figure 9**, May and July 2025 sampling results at TMW-6 are well within historical concentration ranges of many DG-xx wells, the closest of which is approximately 700 feet to the south.

This significant pre-CCR variability in chloride concentration near TMW-6 is evidence that the current intrawell UPL for chloride at TMW-6 does not completely account for the natural geochemical variability within the aquifer. As the downgradient SCPD wells were installed in 2022, there has been a limited number of results at these wells over a relatively short period of time. UPLs for these wells were calculated based on 8 initial sampling events over the course of only 7 months, which is likely not a long enough time period to capture the full, natural variability of concentrations in the aquifer. Additionally, average chloride concentrations in the Missouri and Mississippi Rivers (23.48 mg/L and 27.06 mg/L, respectively) are greater than double the UPL (11.02 mg/L) at TMW-6. The Missouri and Mississippi Rivers may also contribute to the chloride variability across the site.

## 5.6 Geochemical Signature Comparisons

Stiff diagrams are useful for visualizing major ion chemistry as distinct shapes. When plotted on a map, Stiff diagrams are useful in understanding the spatial variability in groundwater major ion chemistry (EPRI, 2012). If a significant quantity of leachate material is released to the groundwater, Stiff diagrams for samples collected from affected wells would show a marked shift in shape from one resembling historical groundwater data to one more closely resembling the leachate (EPI, 2012). In June 2006, temporary groundwater piezometers were installed and sampled for major ion concentrations as part of the Detailed Site Investigation (DSI) for the UWL Area south of Highway 94 (Gredell, 2006). These data are provided in **Table 5** and were used to generate Stiff diagrams

comparing current groundwater chemistry with groundwater chemistry from 2006, four years prior to the use of the UWL for CCR disposal. A Stiff diagram of the leachate sample taken directly from the SCPD was also produced as a point of comparison.

**Figure 10** displays Stiff diagrams for samples taken from the temporary piezometers in 2006 and Stiff diagrams for samples collected during the May 2025 sampling event. In general, Stiff diagrams constructed from samples collected during the May 2025 sampling event closely resemble Stiff diagrams constructed from nearby temporary piezometer samples collected prior to CCR disposal in the UWL area. Neither the Stiff diagrams constructed from historical data nor the Stiff diagrams constructed from data collected during the May 2025 sampling event resemble the FGD leachate sample (representing CCR material stored in the SCPD). The leachate sample has an extremely high magnesium signature, which is not reflected in any of the CCR Rule groundwater samples. Sulfate and chloride signatures of the SCPD leachate are also high compared to the groundwater samples. Additionally, while the absolute value of calcium is higher in the leachate than in the groundwater samples, the proportion of calcium relative to the other constituents of the Stiff diagram (Na+K, Mg, SO4, HCO3, and Cl) are markedly low. These geochemical comparisons, both with pre-CCR disposal data and leachate data, provide further evidence that the SSIs detected in the May 2025 sampling event were caused by an alternative source other than CCR impacts from the SCPD.

# 6.0 DEMONSTRATION THAT SSIS WERE NOT CAUSED BY SCPD IMPACTS

Based on the information presented in Section 5.0 above, the SSIs reported for chloride at sulfate at TMW-5 and TMW-6 in the May 2025 sampling event are not the result of impacts from the SCPD. The SSIs are caused by pre-existing concentrations that pre-date CCR placement in the SCLA, natural variability of these concentrations in the alluvial aquifer, and ongoing road salting practices. The following lines of evidence support this conclusion:

- Key FGD indicator parameters such as boron and fluoride are not elevated when comparing recent results with baseline sampling results collected before CCR placement in the SCPD.
- Historical chloride and sulfate concentrations predating CCR placement in the SCPC, SCPD, and SCL4A (prior to July 30, 2010) in monitoring wells near TMW-5 and TMW-6 exhibit a high degree of variability, with some concentrations exceeding recent results at these wells.
- Sulfate concentrations in the Missouri River south of the SCPD exceed those measured at TMW-5 and the river recharges the groundwater aquifer.
- Chloride concentrations in the Missouri River south of the SCPD and the Mississippi River north of the SCPD exceed those measured at TMW-6.
- When plotted on Stiff diagrams, the geochemical signatures of groundwater samples collected prior to CCR disposal are very similar to May 2025 signatures at TMW-5 and TMW-6, and these signatures are markedly different from FGD leachate material stored in the SCPD.
- Current UPLs for each of these wells were calculated from only eight baseline sampling events, collected in a 7-month period prior to surface disturbances relating to SCPD construction. The full variability in the alluvial aquifer for this area was likely not captured during the baseline sampling.

Along with these lines of evidence listed above, the SCPD is lined with a composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than 1 X $10^{-7}$ centimeters per second (cm/sec) overlain by a 60-mil flexible high-density polyethylene (HDPE) geomembrane liner which was designed and constructed to properly contain CCR and prevent groundwater impacts.

# 7.0 REFERENCES

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# Tables

# Table 1
# May 2025 Detection Monitoring Results
# SCPD Surface Impoundment
# Sioux Energy Center, St. Charles County, MO

| | | BACKGROUND | | GROUNDWATER MONITORING WELLS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ANALYTE | UNITS | BMW-1S | BMW-3S | Prediction Limit UG-2 | UG-2 | Prediction Limit TMW-4 | TMW-4 | Prediction Limit TMW-5 | TMW-5 | Prediction Limit TMW-6 | TMW-6 |
| May 2025 Detection Monitoring Event | | | | | | | | | | | |
| DATE | NA | 5/7/2025 | 5/7/2025 | NA | 5/8/2025 | NA | 5/12/2025 | NA | 5/12/2025 | NA | 5/12/2025 |
| pH | SU | 6.82 | 6.85 | 6.29 - 7.50 | 6.98 | 6.585-7.26 | 7.02 | 6.642-7.223 | 7.04 | 6.59-7.093 | 6.81 |
| BORON, TOTAL | µg/L | 56.5 J | 55.1 J | 277.7 | 137 | 122.2 | 81.4 J | 116.0 | 78.4 J | 131.8 | 88.9 J |
| CALCIUM, TOTAL | µg/L | 177,000 J | 129,000 | 143,772 | 84,900 | 146,033 | 106,000 | 156,060 | 108,000 | 179,541 | 143,000 |
| CHLORIDE, TOTAL | mg/L | 11.4 | 10.6 | 93.74 | 5.5 | 3.216 | 2.4 J | 2.435 | 1.7 | 11.02 | 19.4 J |
| FLUORIDE, TOTAL | mg/L | 0.26 | 0.30 | 0.34 | 0.30 | 0.48 | ND | 0.6744 | ND | 0.37 | ND |
| SULFATE, TOTAL | mg/L | 35.1 | 24.5 | 93.63 | 38.2 J | 44.43 | 11.2 | 46.12 | 81.8 | 51.85 | 51.5 J |
| TOTAL DISSOLVED SOLIDS | mg/L | 615 | 449 | 657.3 | 327 | 571 | 438 | 600.6 | 428 | 719.8 | 553 |
| July 2025 Verification Sampling Event | | | | | | | | | | | |
| DATE | NA | | | | | | | | 7/10/2025 | | 7/10/2025 |
| pH | SU | | | | | | | | | | |
| BORON, TOTAL | µg/L | | | | | | | | | | |
| CALCIUM, TOTAL | µg/L | | | | | | | | | | |
| CHLORIDE, TOTAL | mg/L | | | | | | | | | | 15.0 |
| FLUORIDE, TOTAL | mg/L | | | | | | | | | | |
| SULFATE, TOTAL | mg/L | | | | | | | | 89.4 | | |
| TOTAL DISSOLVED SOLIDS | mg/L | | | | | | | | | | |

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.
7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

Prepared By: GTM
Checked By: JDQ
Reviewed By: JSI

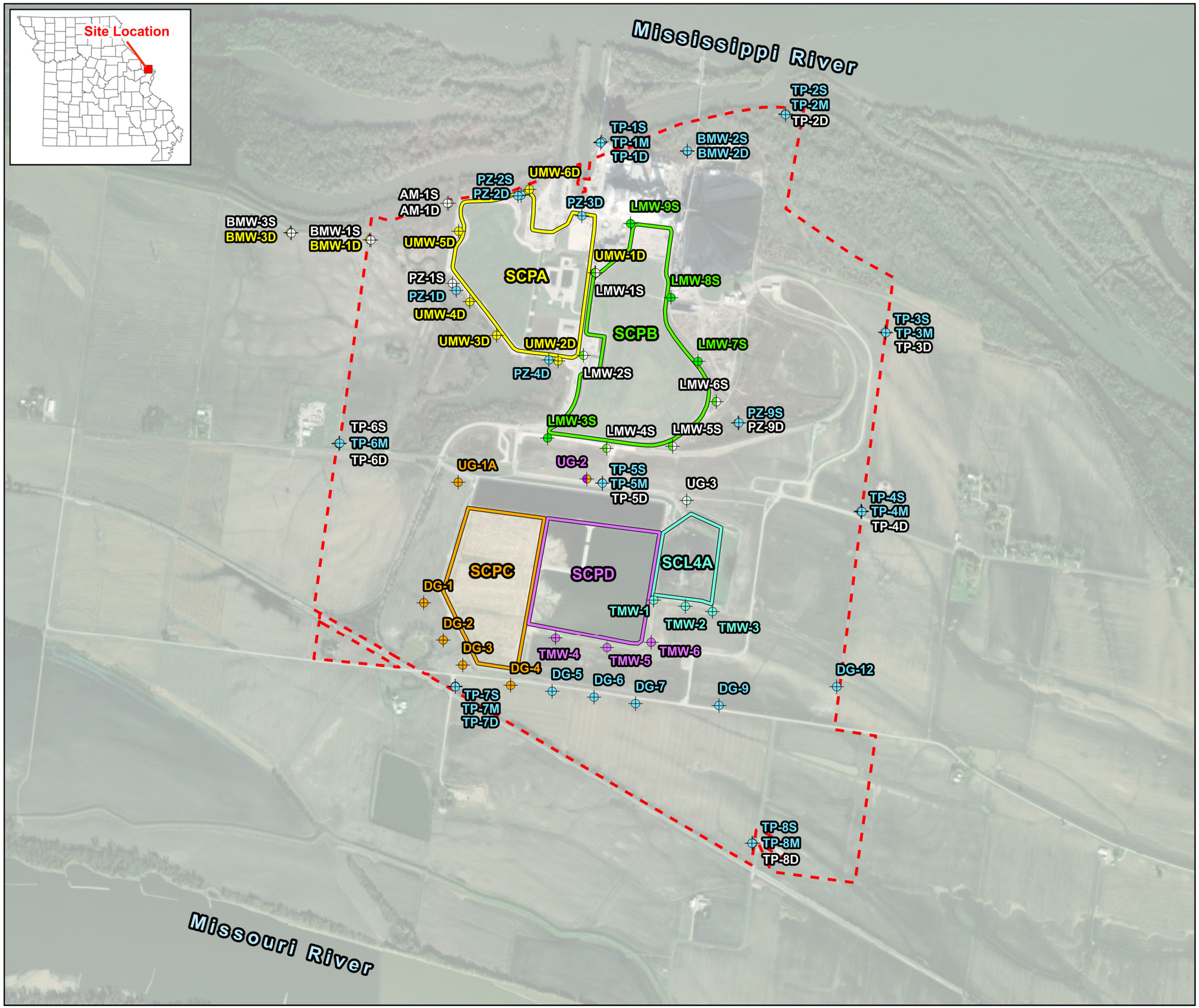
**Table 5**
**Major Cation and Anion Concentrations for Stiff Diagrams**
**Sioux Energy Center, St. Charles County, MO**

| Monitoring Well ID | Total Sodium (mg/L) | Total Potassium (mg/L) | Total Calcium (mg/L) | Total Magnesium (mg/L) | Total Chloride (mg/L) | Total Sulfate (mg/L) | Total Alkalinity [2] (mg/L) |
|---|---|---|---|---|---|---|---|
| **Detection Monitoring - May 2025** | | | | | | | |
| S-BMW-1S | 5.54 | 0.479 J | 177 J | 35.1 | 11.4 | 35.1 | 555 |
| S-BMW-3S | 6.42 | 0.436 J | 129 | 22.7 | 10.6 | 24.5 | 375 |
| S-DG-1 | 5.26 | 5.89 | 141 | 31.4 | 8.70 | 66.2 | 430 |
| S-DG-2 | 4.90 | 5.79 | 140 | 33.3 | 5.70 | 51.1 | 462 |
| S-DG-3 | 5.88 | 5.42 | 155 | 31.5 | 25.1 | 74.8 | 465 |
| S-DG-4 | 7.13 | 6.59 | 159 | 46.7 | 16.8 J | 75.9 J | 530 |
| S-TMW-1 | 4.05 | 4.56 | 118 | 22.2 | 10.8 J | 57.3 | 359 |
| S-TMW-2 | 3.52 | 4.72 | 112 | 20.4 | 6.4 | 27.2 | 392 |
| S-TMW-3 | 4.55 | 5.99 | 121 | 22.2 | 16.8 J | 45.0 J | 375 |
| S-UG-1A | 49.0 | 8.27 | 131 | 31.4 | 110 J | 70.6 J | 376 |
| S-UG-2 | 7.61 | 3.81 | 84.9 | 18.6 | 5.5 | 38.2 J | 289 |
| S-UG-3 | 18.5 | 4.02 | 137 | 26.6 | 24.8 | 89.7 | 379 |
| S-TMW-4 | 4.11 | 5.13 | 106 | 24.4 | 2.40 J | 11.2 | 297 |
| S-TMW-5 | 3.73 | 5.03 | 108 | 19.8 | 1.7 | 81.8 | 295 |
| S-TMW-6 | 5.51 | 8.11 | 143 | 27.7 | 19.4 J | 51.5 J | 424 |
| **Historical Data - June 2006[1]** | | | | | | | |
| PZ-1 | 5.2 | 4.1 | 140 | 38 | 11 | 69 | 480 |
| PZ-2 | 3.8 | 2.8 | 120 | 32 | 6.6 | 36 | 420 |
| PZ-3 | 5.4 | 5.2 | 140 | 27 | 12 | 53 | 440 |
| PZ-4 | 16 | 4.5 | 140 | 35 | 13 | 220 | 320 |
| PZ-10 | 3.4 | 3.9 | 99.0 | 31 | 4.6 | 43 | 370 |
| PZ-21 | 8.0 | 2.9 | 130 | 26 | 25 | 100 | 350 |
| PZ-25 | 4.2 | 4.9 | 120 | 38 | 19 | 29 | 470 |
| PZ-36 | 7.2 | 4.2 | 110 | 22 | 21 | 34 | 310 |
| PZ-40 | 3.2 | 4.0 | 120 | 21 | 1.7 | 33 | 370 |
| PZ-50 | 3.4 | 3.8 | 97.0 | 24 | 18 | 43 | 290 |
| PZ-55 | 3.9 | 4.5 | 120 | 24 | 6.1 | 52 | 370 |
| PZ-56 | 4.4 | 4.5 | 110 | 22 | 25 | 49 | 340 |
| PZ-57 | 4.8 | 4.4 | 120 | 24 | 4.0 | 42 | 370 |
| **FGD Leachate Data - December 2023[5]** | | | | | | | |
| LEACH | 768 | 177 | 911 | 3980 | 7390 | 5820 | 35 |

Notes:
1) 2006 Historical Data from Appendix 13 of the Detailed Site Investigation (DSI).
2) Alkalinity is equal to Carbonate + Bicarbonate.
3) mg/L - milligrams per liter.
4) J - Value is an estimate.
5) Flue gas desulfurization (FGD) leachate sample collected in December 2023.

Prepared by: JDQ
Checked by: JTR
Reviewed by: JSI

# Figures




TITLE

# SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

**Legend**

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)

**Utility Waste Landfill Cells**

- SCPC - FGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

**Monitoring Well Networks**

- Corrective Action Monitoring Well
- SCPA Detection and Assessment Monitoring Well
- SCPB and Corrective Action Monitoring Well
- SCPB Detection Monitoring Well
- SCPC Detection Monitoring Well
- SCPD and SCPC Detection Monitoring Well
- SCPD Detection Monitoring Well
- SCL4A and Corrective Action Monitoring Well
- SCL4A Detection Monitoring Well
- Monitoring Well Used for Water Level Elevation Measurements Only

**NOTES**

1. All boundaries and locations are approximate.
2. FGD - Flue Gas Desulfurization.
3. CCR - Coal Combustion Residuals.

**REFERENCES**

1. St Charles County, Missouri Geo-Data & Mapping Hub, Parcel Dataset, Updated April 2025.

0 500 1,000 2,000 3,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

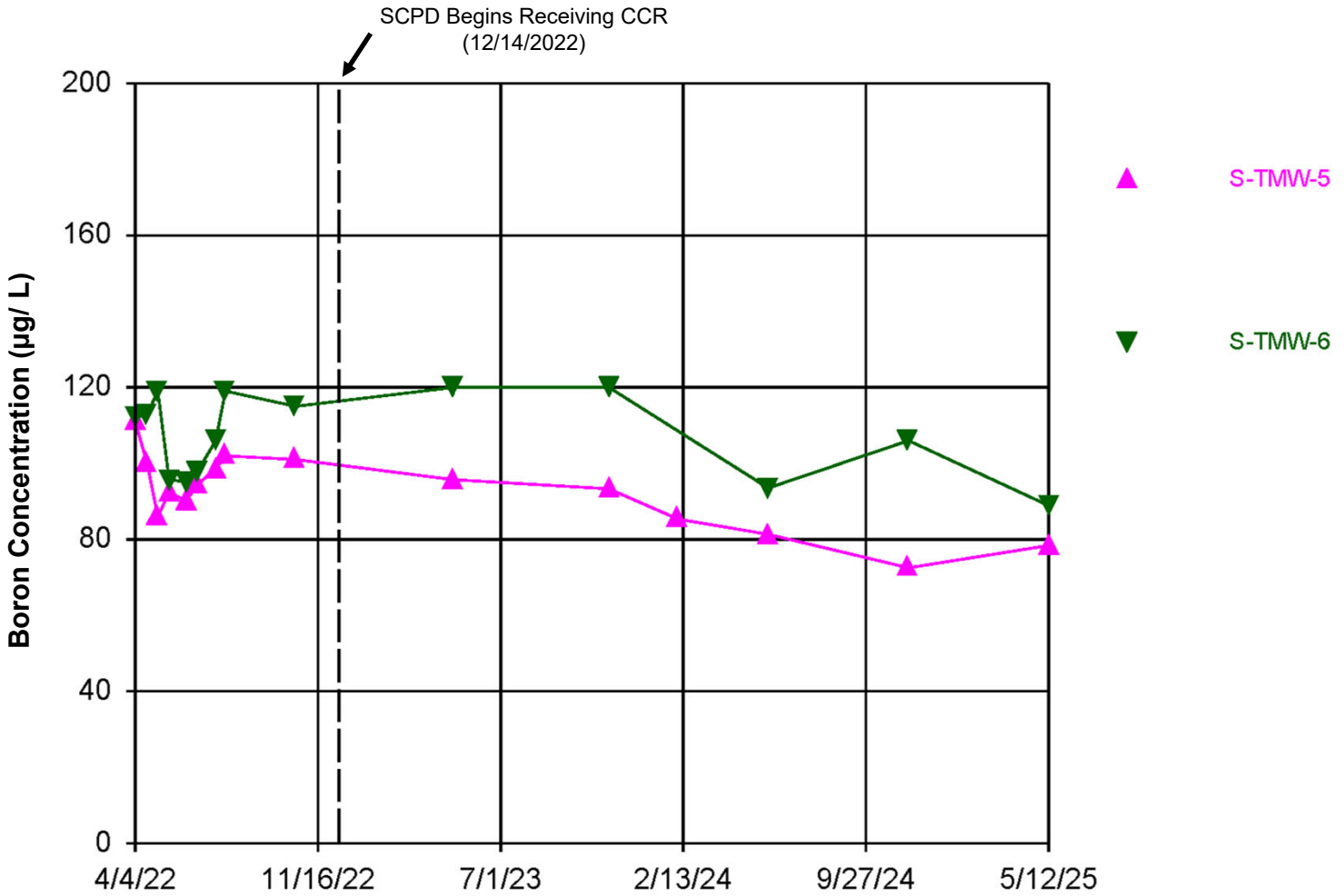
ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | JSI | YYYY-MM-DD | 2025-12-04 |
| PREPARED | JSI | PROJECT No. | 23009-25 |
| REVIEW | GTM | | |
| APPROVED | MNH | | |

**FIGURE 1**

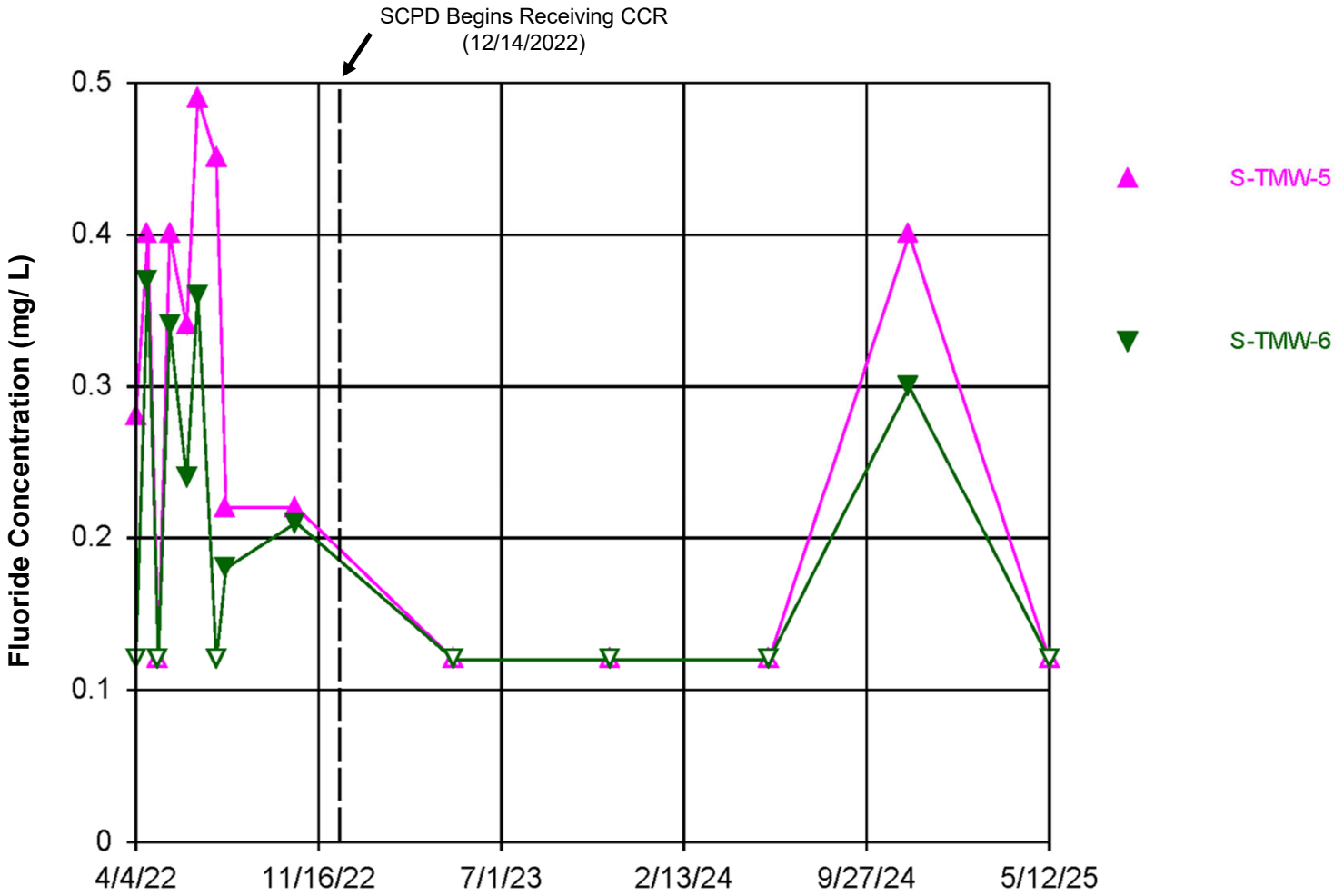
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: C:\Users\GrantMoney\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings_Figures\4.3-SEC\4.3.2 - Production\Other Maps\Figure 1- SEC Well Locations.aprx




Notes
1) µg/L – Micrograms per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | TITLE | | |
|---|---|---|---|---|---|---|
| **AMEREN MISSOURI SIOUX ENERGY CENTER** | | | | **Timeseries Plot of Boron Concentrations at TMW-5 and TMW-6** | | |
| DRAWN | CHECKED | REVIEWED | DATE | Rev No. | JOB NO. | FIGURE |
| JDQ | GTM | JSI | 2025-09-19 | NA | 23009-25 | **3** |




Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | | TITLE |
|---|---|---|---|---|---|
| AMEREN MISSOURI<br>SIOUX ENERGY CENTER | | | | | Timeseries Plot of Fluoride Concentrations at TMW-5 and TMW-6 |
| DRAWN | CHECKED | REVIEWED | DATE | Rev No. | JOB NO. / FIGURE |
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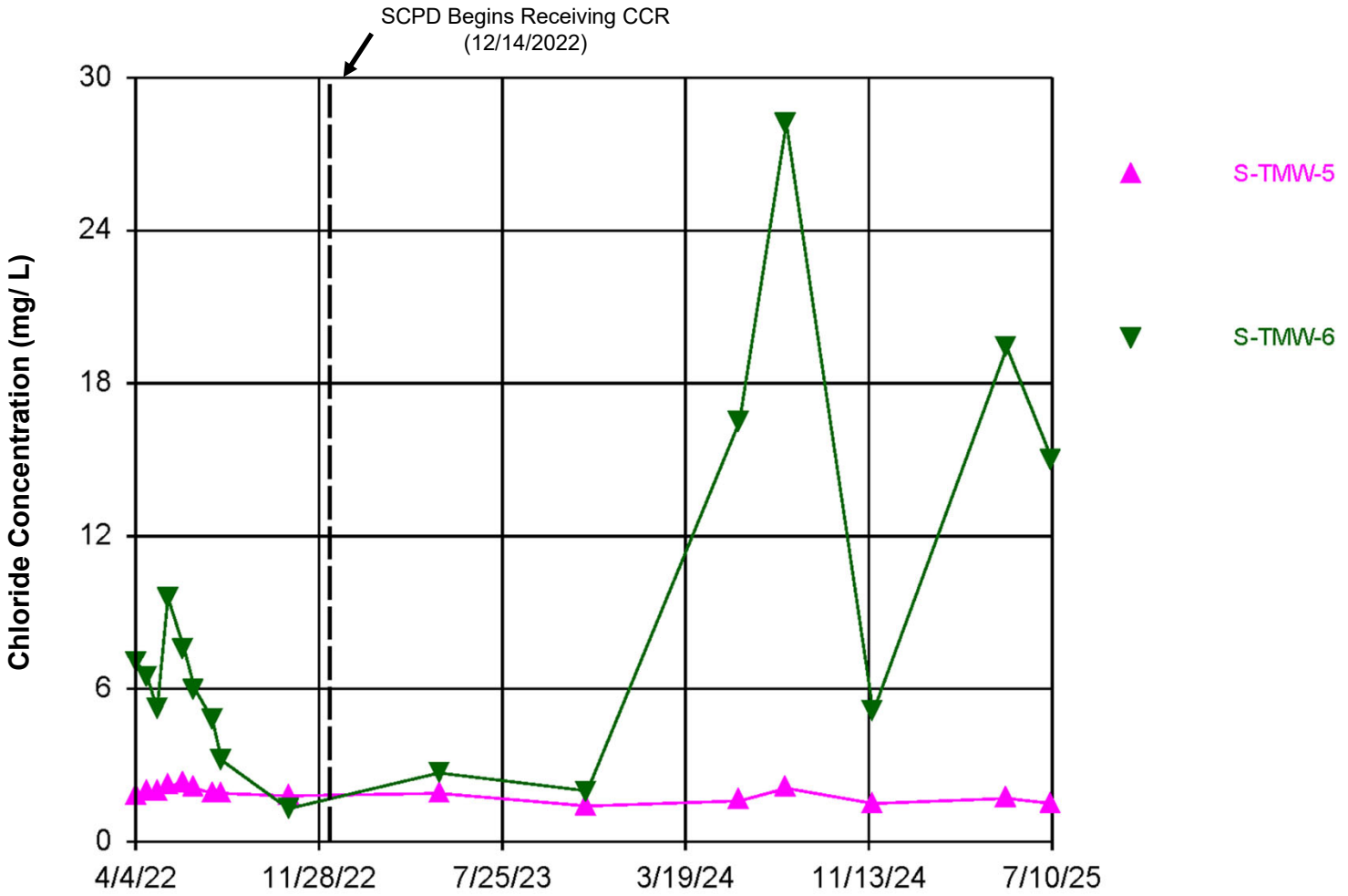
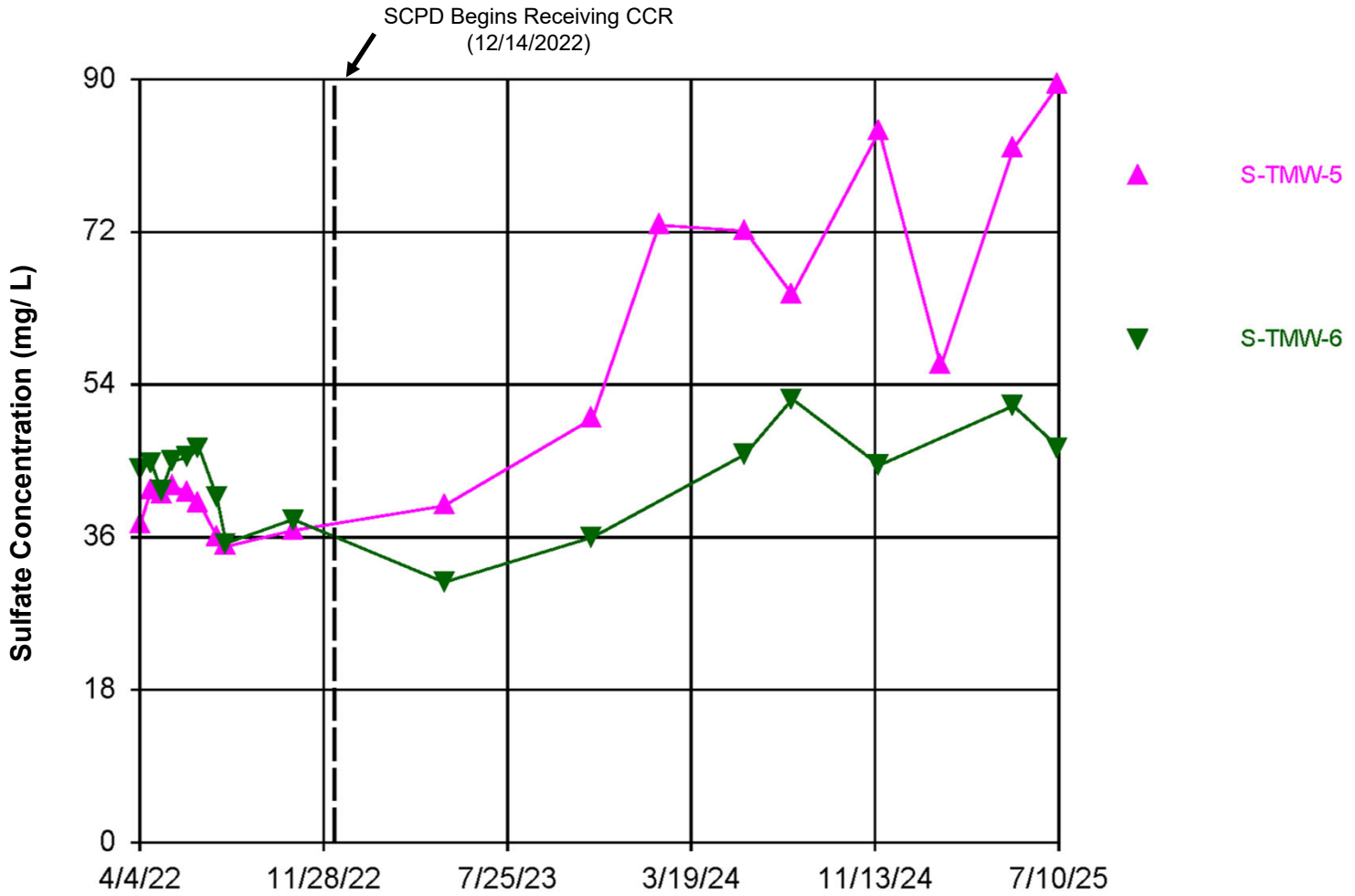


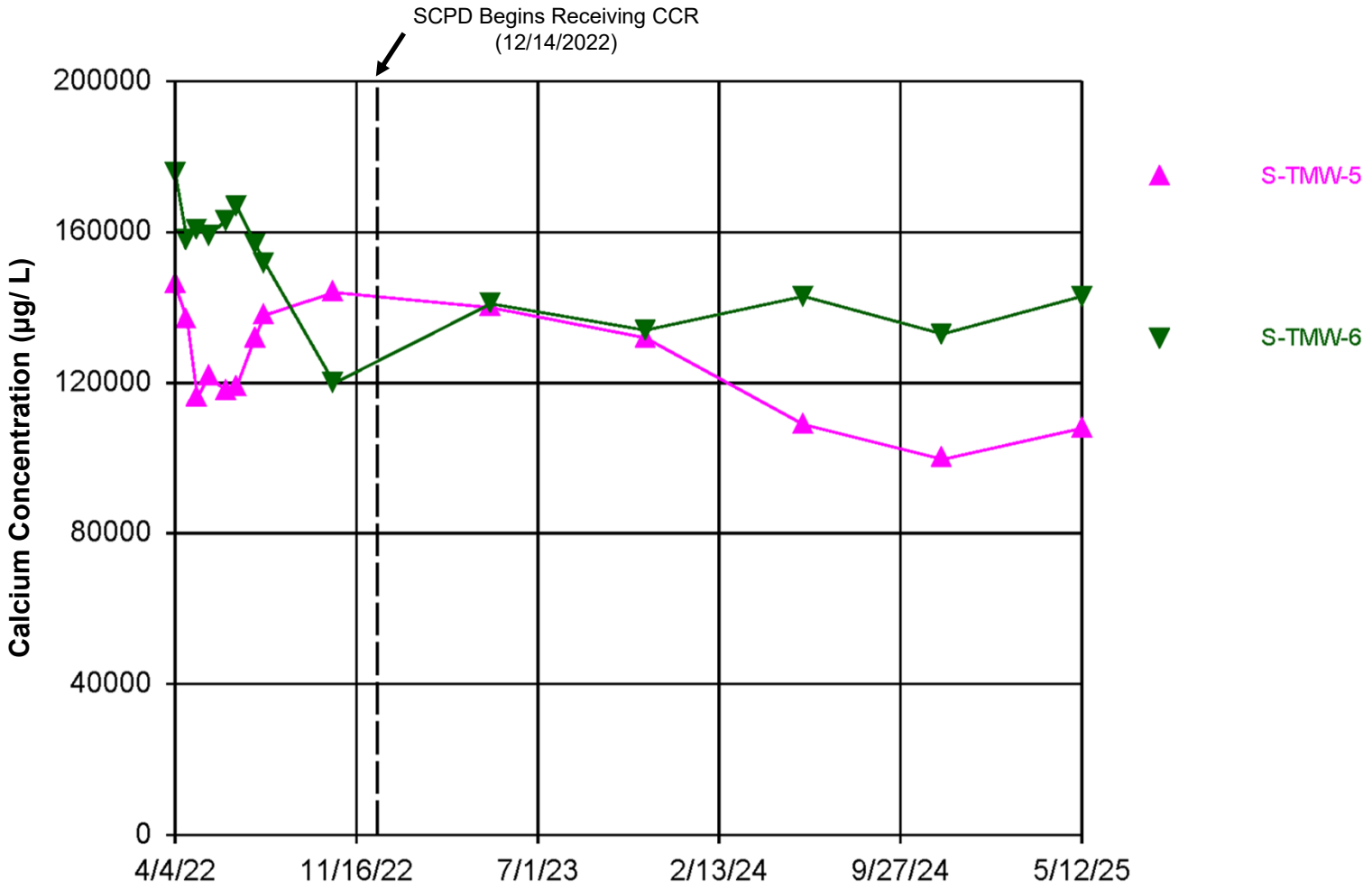

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | | TITLE | | |
|---|---|---|---|---|---|---|---|
| AMEREN MISSOURI<br>SIOUX ENERGY CENTER | | | | | Timeseries Plot of Chloride Concentrations at TMW-5 and TMW-6 | | |
| DRAWN | CHECKED | REVIEWED | DATE | | Rev No. | JOB NO. | FIGURE |
| JDQ | GTM | JSI | 2025-09-19 | | NA | 23009-25 | 5 |



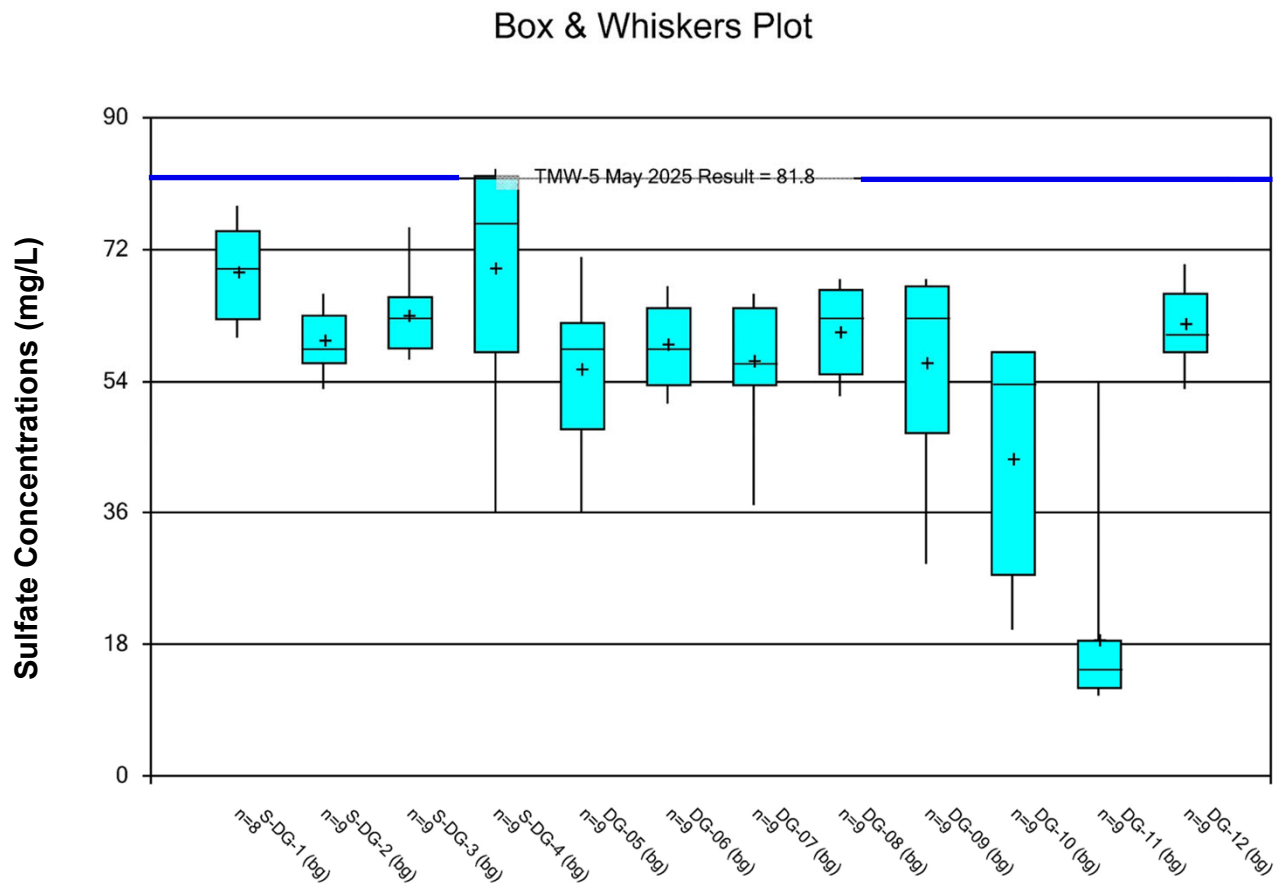

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

| CLIENT/PROJECT | | | | | TITLE | | |
|---|---|---|---|---|---|---|---|
| AMEREN MISSOURI<br>SIOUX ENERGY CENTER | | | | | Timeseries Plot of Sulfate Concentrations at TMW-4 and TMW-5 | | |
| DRAWN | CHECKED | REVIEWED | DATE | | Rev No. | JOB NO. | FIGURE |
| JDQ | GTM | JSI | 2025-09-19 | | NA | 23009-25 | 6 |




Notes
1) µg/L – Micrograms per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.

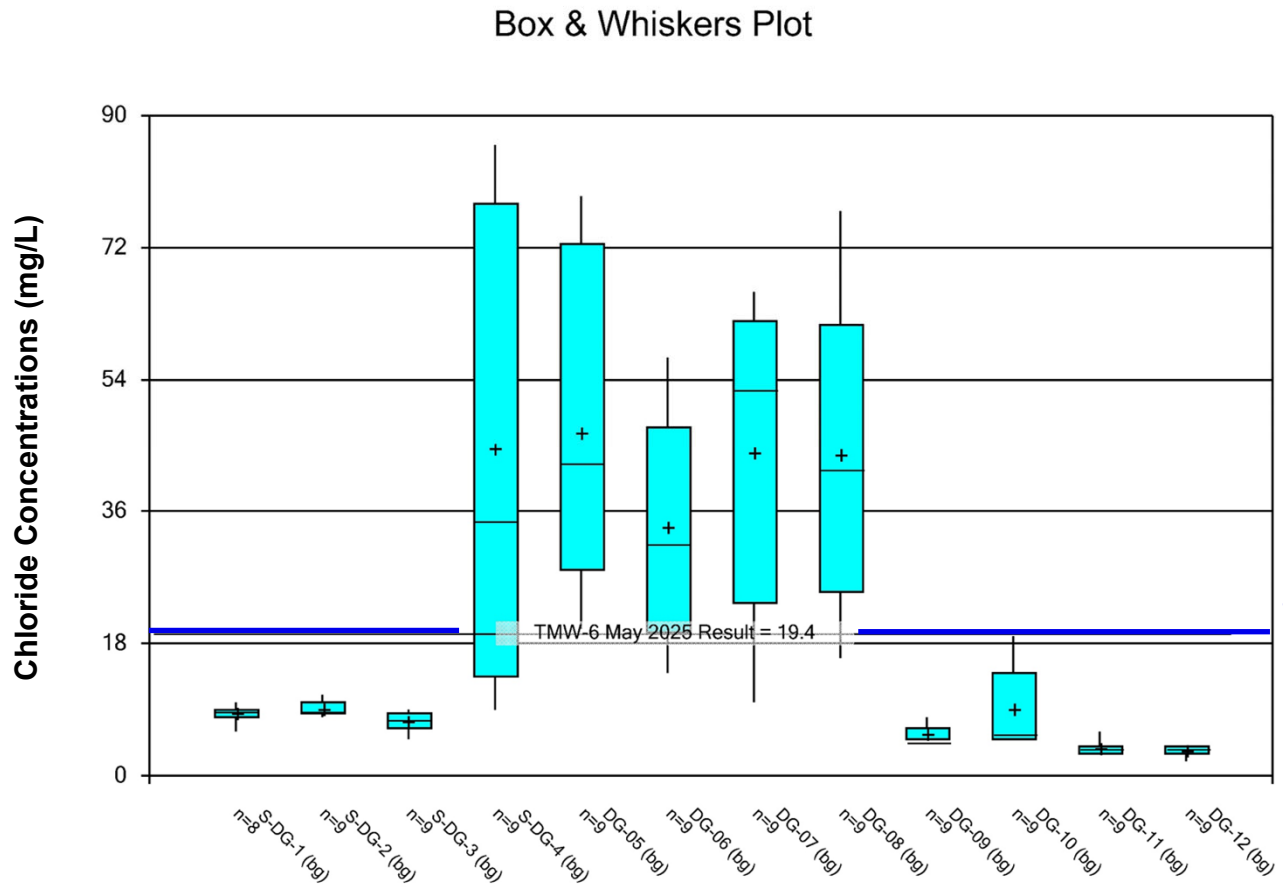
| CLIENT/PROJECT | | | | | TITLE | | |
|---|---|---|---|---|---|---|---|
| **AMEREN MISSOURI**<br>**SIOUX ENERGY CENTER** | | | | | **Timeseries Plot of Calcium Concentrations at TMW-5 and TMW-6** | | |
| DRAWN | CHECKED | REVIEWED | DATE | | Rev No. | JOB NO. | FIGURE |
| JDQ | GTM | JSI | 2025-09-19 | | NA | 23009-25 | **7** |




**TMW-5 May 2025 Sulfate Result (81.8 mg/L)**

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.
4) UWL – Utility Waste Landfill.
5) J – Result is an estimated value.

| CLIENT/PROJECT | | | | | TITLE | | |
|---|---|---|---|---|---|---|---|
| **AMEREN MISSOURI**<br>**SIOUX ENERGY CENTER** | | | | | **Pre-CCR Placement Sulfate Concentrations – State UWL Downgradient Monitoring Wells** | | |
| DRAWN | CHECKED | REVIEWED | DATE | | Rev No. | JOB NO. | FIGURE |
| JDQ | GTM | JSI | 2025-09-19 | | NA | 23009-25 | **8** |



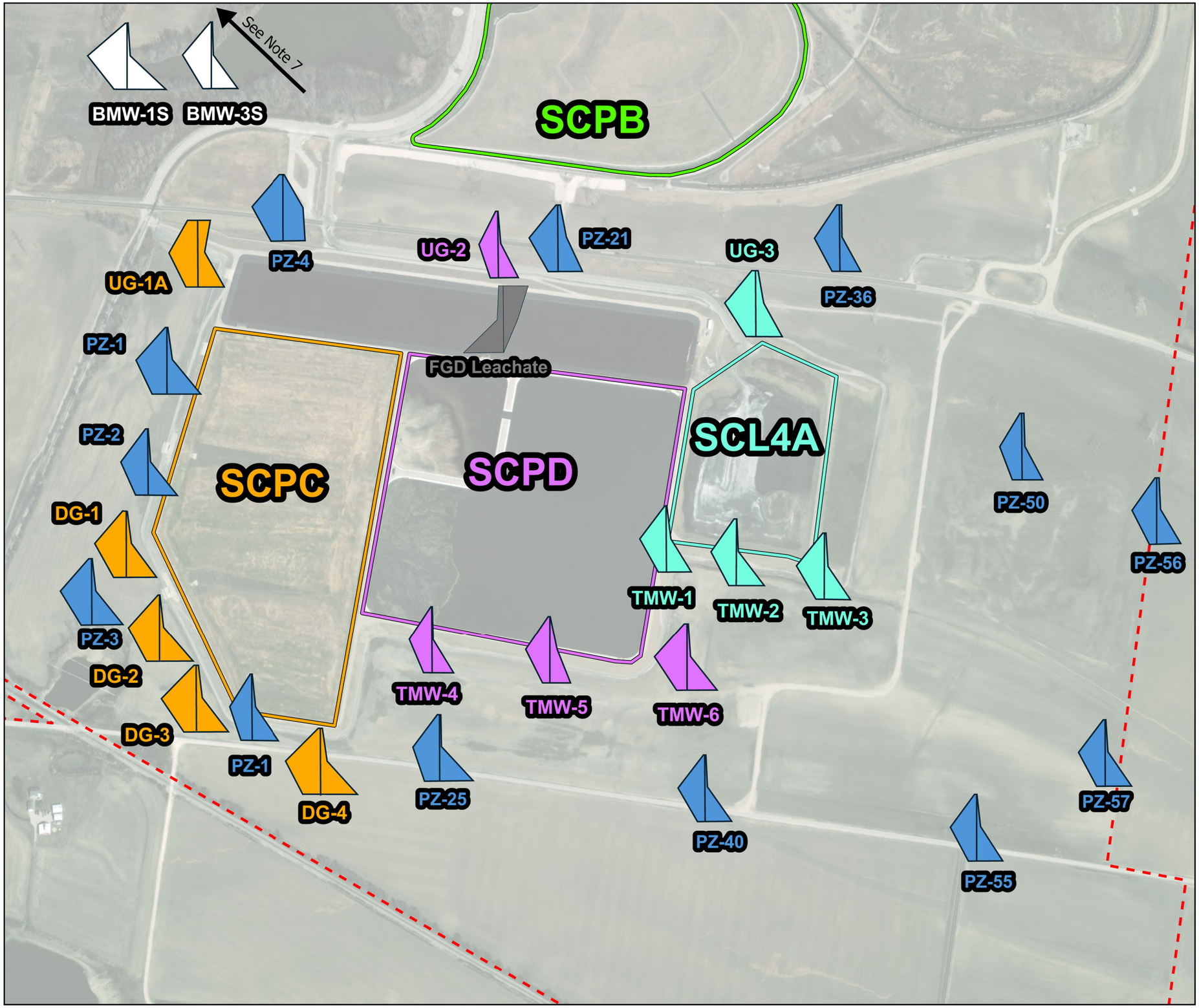

**TMW-6 May 2025 Chloride Result (19.4 mg/L)**

Notes
1) mg/L – Milligrams per liter.
2) UPL – Upper Prediction Limit.
3) CCR – Coal Combustion Residuals.
4) UWL – Utility Waste Landfill.
5) J – Result is an estimated value.

| CLIENT/PROJECT | | | | TITLE | | |
|---|---|---|---|---|---|---|
| **AMEREN MISSOURI**<br>**SIOUX ENERGY CENTER** | | | | **Pre-CCR Placement Chloride Concentrations – State UWL Downgradient Monitoring Wells** | | |
| DRAWN<br>JDQ | CHECKED<br>GTM | REVIEWED<br>JSI | DATE<br>2025-09-29 | Rev No.<br>NA | JOB NO.<br>23009-25 | FIGURE<br>**9** |

TITLE

# DISTRIBUTION OF STIFF DIAGRAMS - UWL AREA




**Legend**

- Sioux Energy Center Property Boundary

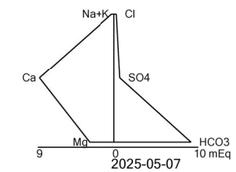
**CCR Units**

- SCPB - Lined Fly Ash Surface Impoundment (Closed)

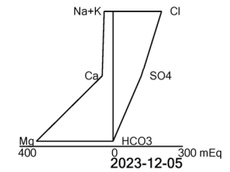
**Utility Waste Landfill Cells**

- SCL4A - Dry CCR Disposal Area
- SCPC - FGD Surface Impoundment (Closed)
- SCPD - FGD Surface Impoundment

**Stiff Diagram Examples:**




Background Groundwater




FGD Leachate Sample

Mg - Magnesium
Ca - Calcium
Na+K - Sodium + Potassium
Cl - Chloride
SO4 - Sulfate
HCO3 - Alkalinity
mEq - milliEquivalents

**NOTES**

1. All boundaries and locations are approximate.
2. UWL - Utility Waste Landfill.
3. FGD - Flue Gas Desulfurization.
4. CCR - Coal Combustion Residuals.
5. Stiff diagrams created with Sanitas using data from the May 2025 sampling event for CCR Rule monitoring wells, 2006 Detailed Site Investigation (Blue), and 2023 FGD Leachate sampling (Black).
6. Stiff diagrams for all locations are presented on the same scale, with the exception of the FGD leachate sample. See diagram examples above for scales used.
7. Upgradient background wells BMW-1S and BMW-3S are not depicted in true location for visual clarity purposes. See Figure 1 for true location of these wells.
8. Stiff diagrams are colored based on their grouping or monitoring network: background (white), SCPC (orange), SCPD (purple), SCL4A (light blue), leachate (gray) & Detailed Site Investigation piezometers (dark blue).

**REFERENCES**

1. Ameren Missouri Sioux Energy Center, Sioux Property Control Map, February 2011.

0 500 1,000 Feet

PROJECT
GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | JSI | YYYY-MM-DD | 2025-09-29 |
| PREPARED | JTR | PROJECT No. | 23009-25 |
| REVIEW | GTM | | |
| APPROVED | JSI | | |

**FIGURE 10**

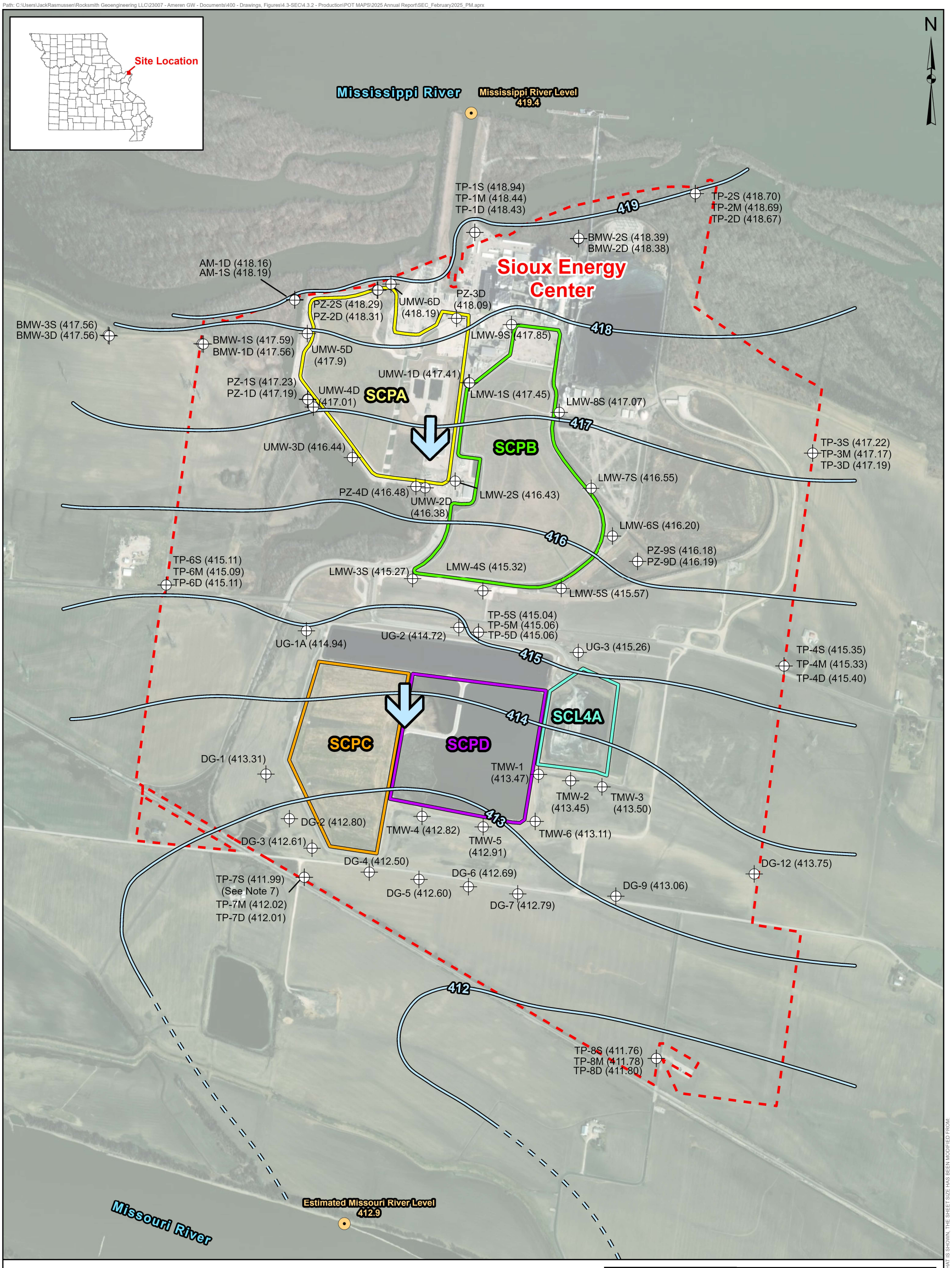
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:

Path: C:\Users\GrantMorey\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\SCPC ASD\SCPC ASD Stiff.aprx

# Appendix D

## 2025 Potentiometric Surface Maps

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2025 Annual Report\SEC_February2025_PM.aprx




## LEGEND

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

**Groundwater Elevation Contour (FT MSL)**

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

**Ground/Surface Water Measurement Locations**

- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

## NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.
7.) WELL TP-7S NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO LOCALIZED VERTICAL GRADIENT.

## REFERENCES


1.) ST CHARLES COUNTY, MISSOURI GEO-DATA & MAPPING HUB, PARCEL DATASET, UPDATED APRIL 2025.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).


0 500 1,000 1,500 2,000 Feet

TITLE
# FEBRUARY 6, 2025 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

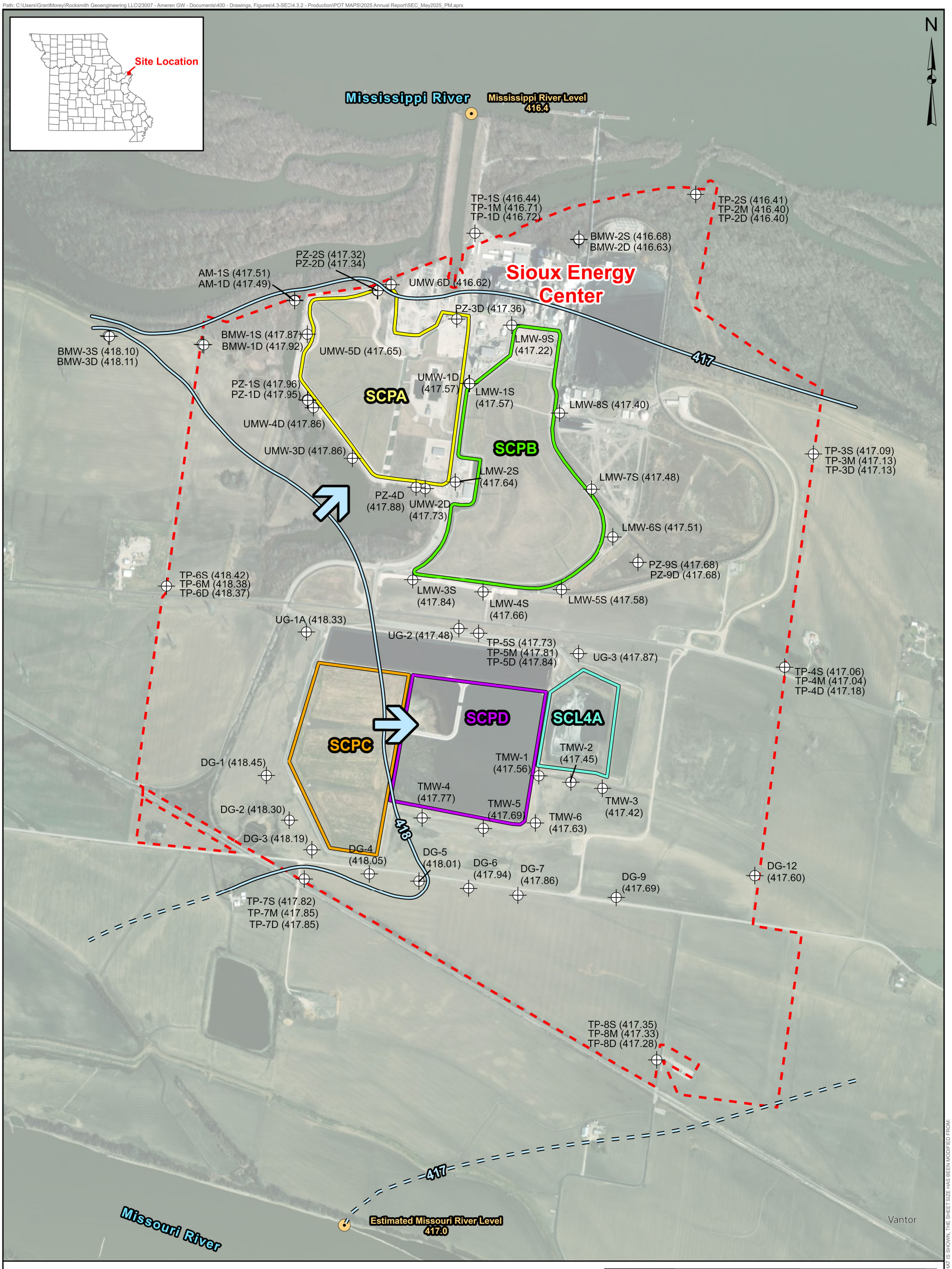
ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | GTM | YYYY-MM-DD | 2025-03-28 |
| PREPARED | JTR | PROJECT No. | 23009-25 |
| REVIEW | JDQ | | |
| APPROVED | MNH | | |

**FIGURE D1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: C:\Users\GrantMorey\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2025 Annual Report\SEC_May2025_PM.aprx




## LEGEND

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

**Groundwater Elevation Contour (FT MSL)**

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

**Ground/Surface Water Measurement Locations**

- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

## NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.

## REFERENCES


1.) ST CHARLES COUNTY, MISSOURI GEO-DATA & MAPPING HUB, PARCEL DATASET, UPDATED APRIL 2025.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).


0 500 1,000 1,500 2,000 Feet

TITLE
# MAY 7, 2025 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | GTM | YYYY-MM-DD | 2025-05-19 |
| PREPARED | JDQ | PROJECT No. | 23009-25 |
| REVIEW | JTR | FIGURE D2 | |
| APPROVED | MNH | | |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2025 Annual Report\SEC_July2025_PM.aprx


## LEGEND

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
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- SCPD - FGD Surface Impoundment

**Groundwater Elevation Contour (FT MSL)**

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

**Ground/Surface Water Measurement Locations**

- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

## NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.
7.) TP-4S NOT USED IN POTENTIOMETRIC SURFACE CALCULATION DUE TO LOCALIZED VERTICAL GRADIENT.

## REFERENCES


1.) ST CHARLES COUNTY, MISSOURI GEO-DATA & MAPPING HUB, PARCEL DATASET, UPDATED APRIL 2025.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).


0 500 1,000 1,500 2,000 Feet

TITLE
# JULY 9, 2025 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | GTM | YYYY-MM-DD | 2025-08-15 |
| PREPARED | JDQ | PROJECT No. | 23009-25 |
| REVIEW | JTR | | |
| APPROVED | MNH | | |

**FIGURE D3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
1 in
0

Path: C:\Users\GrantMorey\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2025 Annual Report\SEC_October2025_PM.aprx


N

Mississippi River

Mississippi River Level
419.3

TP-1S (418.88)
TP-1M (418.40)
TP-1D (418.34)

TP-2S (418.60)
TP-2M (418.59)
TP-2D (418.60)

BMW-2S (418.28)
BMW-2D (418.34)

PZ-2S (418.22)
PZ-2D (418.23)

AM-1S (418.02)
AM-1D (418.03)

419

Sioux Energy Center

UMW-6D
(418.12)

PZ-3D
(418.07)

418

BMW-3S (417.53)
BMW-3D (417.52)

BMW-1S (417.46)
BMW-1D (417.49)

UMW-5D
(417.83)

LMW-9S
(417.87)

UMW-1D
(417.60)

LMW-1S
(417.58)

LMW-8S
(417.20)

PZ-1S (417.51)
PZ-1D (417.37)

SCPA

UMW-4D (417.20)

417

SCPB

TP-3S (417.18)
TP-3M (417.18)
TP-3D (417.22)

UMW-3D
(416.77)

PZ-4D
(416.81)

UMW-2D
(416.69)

LMW-2S
(416.77)

LMW-7S
(416.82)

LMW-6S
(416.53)

PZ-9S
(416.63)

416

LMW-3S
(415.95)

LMW-4S
(415.99)

LMW-5S
(416.14)

TP-6S (415.97)
TP-6M (415.96)
TP-6D (415.96)

UG-1A
(415.85)

UG-2 (415.51)

TP-5S (416.15)
TP-5M (415.89)
TP-5D (415.87)

UG-3 (416.10)

TP-4S (416.00)
TP-4M (416.00)
TP-4D (416.02)

SCPD

SCL4A

SCPC

415

TMW-1
(414.81)

DG-1
(414.79)

TMW-5
(414.39)

TMW-2
(414.72)

TMW-3
(414.76)

DG-2
(414.43)

TMW-4
(414.34)

TMW-6
(414.54)

DG-3
(414.24)

DG-4
(414.10)

DG-5
(414.18)

DG-6
(414.25)

DG-7
(414.33)

DG-9
(414.53)

DG-12
(414.99)

TP-7S (413.68)
TP-7M (413.67)
TP-7D (413.65)

414

TP-8S (413.37)
TP-8M (413.37)
TP-8D (413.41)

Estimated Missouri River Level
414.4

Missouri River

Vantor

## LEGEND

- Sioux Energy Center Property Boundary

**CCR Units**

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

**Groundwater Elevation Contour (FT MSL)**

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

**Ground/Surface Water Measurement Locations**

- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

## NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.

## REFERENCES

1.) ST CHARLES COUNTY, MISSOURI GEO-DATA & MAPPING HUB, PARCEL DATASET, UPDATED APRIL 2025.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).

0 500 1,000 1,500 2,000 Feet

TITLE
# OCTOBER 2, 2025 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | GTM | YYYY-MM-DD | 2025-12-18 |
| PREPARED | JDQ | PROJECT No. | 23009-25 |
| REVIEW | JTR | | |
| APPROVED | MNH | | |

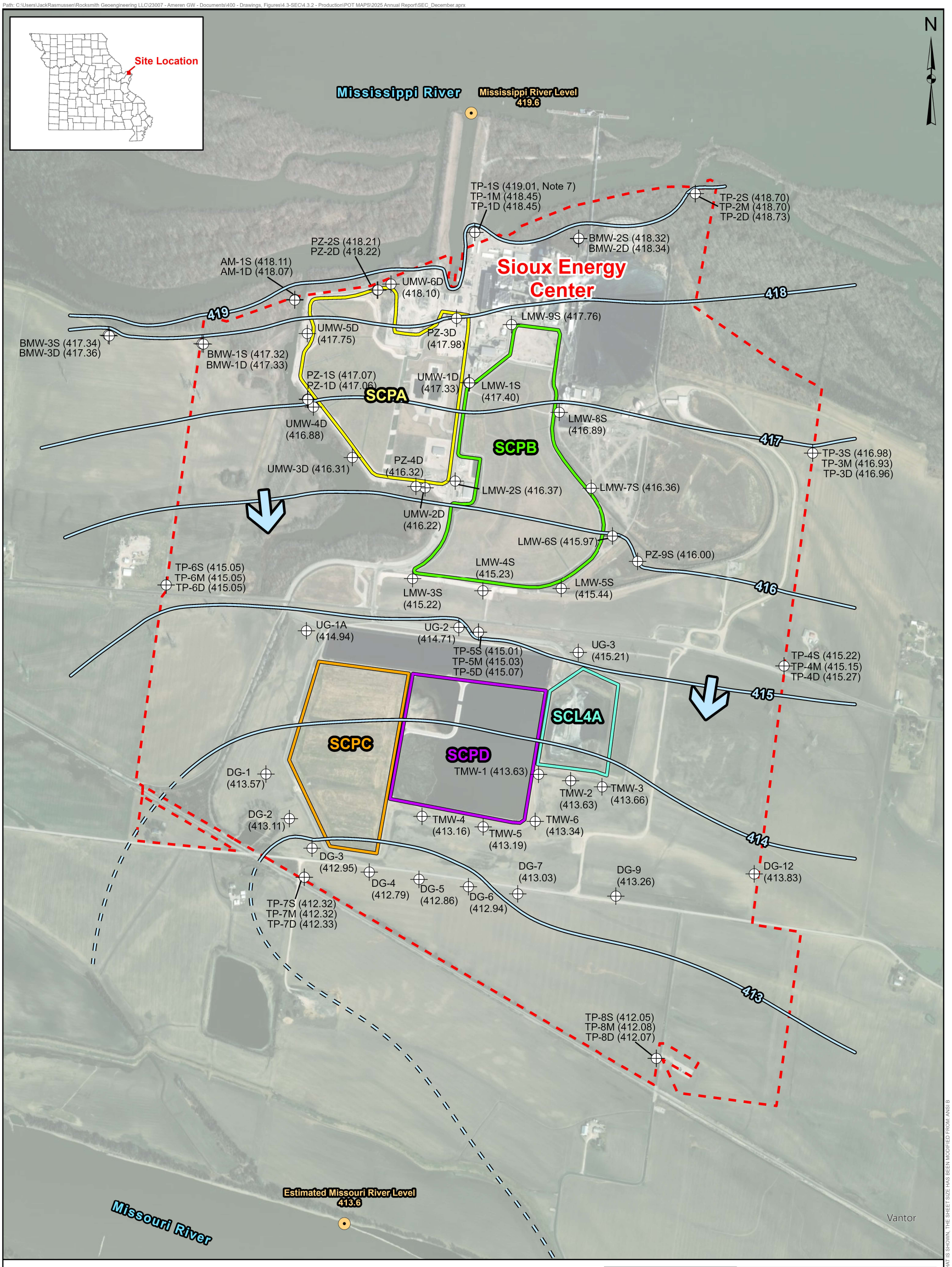
**FIGURE D4**

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

1 in

0

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2025 Annual Report\SEC_December.aprx




## LEGEND

- Sioux Energy Center Property Boundary

**CCR Units**

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- SCPC - WFGD Surface Impoundment (Closed)
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- Groundwater Elevation Contour (FT MSL)
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- Groundwater Flow Direction

## NOTES

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4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.
7.) TP-1S IS NOT USED FOR POTENTIOMETRIC SURFACE CONTOURING.

## REFERENCES


1.) ST CHARLES COUNTY, MISSOURI GEO-DATA & MAPPING HUB, PARCEL DATASET, UPDATED APRIL 2025.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).


0 500 1,000 1,500 2,000 Feet

TITLE
# DECEMBER 2, 2025 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

| | | | |
|---|---|---|---|
| DESIGN | GTM | YYYY-MM-DD | 2025-12-11 |
| PREPARED | JDQ | PROJECT No. | 23009-25 |
| REVIEW | GTM | | |
| APPROVED | MNH | | |

**FIGURE D5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
1 in
0