

REPORT

# 2025 Annual Groundwater Monitoring and Corrective Action Report

**SCL4A – Utility Waste Landfill Cell 4A, 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 SCL4A 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 Utility Waste Landfill (UWL) Cell 4A (SCL4A) at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This Annual Report for the SCL4A describes CCR Rule groundwater monitoring activities from January 1, 2025, through December 31, 2025, including verification results related to late 2024 sampling.

Throughout 2025, the SCL4A CCR unit has been operating under the Detection Monitoring Program (§257.94), which began October 17, 2017. 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. In 2025, SSIs were determined for the November 2024 and May 2025 sampling events and a summary of the SSIs for the past year is provided in **Table 1**.

**Table 1 - Summary of 2025 SCL4A 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 23, 2024	Appendix III, Major Cations and Anions	<b>Chloride:</b> TMW-2, TMW-3 <b>TDS:</b> TMW-1	March 21, 2025	June 20, 2025
	Verification Sampling, February 6-7, 2025	February 21, 2025	Detected Appendix III parameters <sup>(See Note 1)</sup>			
May 2025 Sampling Event	Detection Monitoring, May 7-9, 2025	June 27, 2025	Appendix III, Major Cations and Anions	<b>Chloride:</b> TMW-1, TMW-3 <b>TDS:</b> TMW-1	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 6-8, 2025	November 12, 2025	Appendix III, Major Cations and Anions	None	January 31, 2026	Not Applicable
	No Verification Sampling was required. No initial exceedances were observed in results from the October 2025 sampling event.					

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 verified SSIs associated with the November 2024 and May 2025 sampling events and are discussed further in this Annual Report.

No new wells were installed or decommissioned in the SCL4A monitoring system in 2025.

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## 1.0 INSTALLATION OR DECOMMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCL4A. 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 SCL4A. For more information on the groundwater monitoring network, details are provided in the previous Annual Groundwater Monitoring Reports for the SCL4A.

## 2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the groundwater sampling events completed for the SCL4A CCR Unit in 2025. **Table 2** below provides a summary of the groundwater samples collected in 2025 including the number of samples, dates 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-3	TMW-1	TMW-2	TMW-3	
	Date of Sample Collection						
February 2025 Verification Sampling	-	-	2/6/2025	2/7/2025	2/6/2025	2/6/2025	Detection
May 2025 Sampling Event	5/7/2025	5/7/2025	5/8/2025	5/8/2025	5/9/2025	5/9/2025	Detection
July 2025 Verification Sampling	-	-	-	7/10/2025	7/10/2025	7/10/2025	Detection
October 2025 Sampling Event	10/6/2025	10/6/2025	10/7/2025	10/8/2025	10/6/2025	10/6/2025	Detection
Total Number of Samples Collected	2	2	3	4	4	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 this report. Detections above respective prediction limits for some Appendix III analytes triggered a verification sampling event, which was completed February 6-7, 2025, and verified three 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

are provided in **Appendix A**. Laboratory Analytical data for the November 2024 Detection Monitoring event are provided in the 2024 Groundwater Monitoring and Corrective Action Annual Report for the SCL4A.

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-1, TMW-2 & TMW-3 are not caused by the SCL4A CCR unit, and therefore, the SCL4A CCR unit remains in Detection Monitoring.

Detection Monitoring samples were collected May 7-9, 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 on July 10, 2025 and verified three SSIs. **Table 4** summarizes the results and statistical analysis of the May 2025 Detection Monitoring event. Similar to previous results, it was determined the SSIs are not caused by the SCL4A CCR unit, as demonstrated by the ASD provided in **Appendix C**.

A Detection Monitoring sampling event was completed October 6-8, 2025, and testing was completed for all Appendix III analytes, as well as major cations and anions. In accordance with the Statistical Analysis Plan, updates to the statistical limits should be completed once four to eight new sample results are available. The statistical limits used to determine an SSI were updated according to the Statistical Analysis Plan using data through the May 2025 sampling event. There were no initial exceedances over respective prediction limits for this event, therefore there were no SSIs, and no verification sampling was conducted. **Table 5** summarizes the results and statistical analysis of the October 2025 Detection Monitoring event.

## 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 water level data from monitoring wells UG-3, TMW-1, TMW-2, and TMW-3, the overall net groundwater movement near the SCL4A has been southward.

## 2.3 Sampling Issues

No notable sampling issues were encountered at the SCL4A 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.

# Tables

**Table 3**  
**November 2024 Detection Monitoring Results**  
**SCL4A - Landfill Cell 4A**  
**Sioux Energy Center, St. Charles County, MO**

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS							
		BMW-1S	BMW-3S	Prediction Limit UG-3	UG-3	Prediction Limit TMW-1	TMW-1	Prediction Limit TMW-2	TMW-2	Prediction Limit TMW-3	TMW-3
<b>November 2024 Detection Monitoring Results</b>											
DATE	NA	11/20/2024	11/20/2024	NA	11/14/2024	NA	11/20/2024	NA	11/19/2024	NA	11/19/2024
pH	SU	6.57	6.72	6.678-7.373	6.94	6.531-7.438	7.16	6.71-7.226	6.81	6.573-7.424	6.75
BORON, TOTAL	µg/L	61.9 J	57.3 J	1,105	418	DQR	83.6 J	101.4	87.2 J	109	93.4 J
CALCIUM, TOTAL	µg/L	175,000	113,000	171,791	120,000	118,531	118,000	132,299	134,000	145,416	128,000
CHLORIDE, TOTAL	mg/L	14.2	13.1	84.34	19.7 J	4.359	3.8	4.531	5.8	3.383	18.7
FLUORIDE, TOTAL	mg/L	ND	ND	0.39	0.47 J	0.4613	0.37	0.4211	0.33	0.37	0.32 J
SULFATE, TOTAL	mg/L	37.1	17.1	136.3	79.1 J	62.35	63.3	86.88	27.7	65.78	43.7
TOTAL DISSOLVED SOLIDS	mg/L	613	413	661.4	497	452.6	460	518	462	493	467
<b>February 2025 Verification Sampling Event</b>											
DATE	NA				2/6/2025		2/7/2025		2/6/2025		2/6/2025
pH	SU										
BORON, TOTAL	µg/L										
CALCIUM, TOTAL	µg/L								120,000		
CHLORIDE, TOTAL	mg/L								4.8		17.7
FLUORIDE, TOTAL	mg/L				0.39						
SULFATE, TOTAL	mg/L						61.3				
TOTAL DISSOLVED SOLIDS	mg/L						559				

**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.
8. If all background values are less than the Practical Quantitation Limit (PQL) then the Double Quantification Rule (DQR) is used.
9. 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**  
**SCL4A - Landfill Cell 4A**  
**Sioux Energy Center, St. Charles County, MO**

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS							
		BMW-1S	BMW-3S	Prediction Limit UG-3	UG-3	Prediction Limit TMW-1	TMW-1	Prediction Limit TMW-2	TMW-2	Prediction Limit TMW-3	TMW-3
<b>May 2025 Detection Monitoring Results</b>											
DATE	NA	5/7/2025	5/7/2025	NA	5/8/2025	NA	5/8/2025	NA	5/9/2025	NA	5/9/2025
pH	SU	6.82	6.85	6.678-7.373	6.94	6.531-7.438	6.96	6.71-7.226	6.76	6.573-7.424	6.78
BORON, TOTAL	µg/L	56.5 J	55.1 J	1,105	282	DQR	75.3 J	101.4	78.4 J	109	83.5 J
CALCIUM, TOTAL	µg/L	177,000 J	129,000	171,791	137,000	118,531	118,000	132,299	112,000	145,416	121,000
CHLORIDE, TOTAL	mg/L	11.4	10.6	84.34	24.8	4.359	10.8 J	4.531	6.4	3.383	16.8 J
FLUORIDE, TOTAL	mg/L	0.26	0.30	0.39	ND	0.4613	0.34 J	0.4211	0.22	0.37	0.16 J
SULFATE, TOTAL	mg/L	35.1	24.5	136.3	89.7	62.35	57.3 J	86.88	27.2	65.78	45.0 J
TOTAL DISSOLVED SOLIDS	mg/L	615	449	661.4	576	452.6	466	518	450	493	476
<b>July 2025 Verification Sampling Event</b>											
DATE	NA						7/10/2025		7/10/2025		7/10/2025
pH	SU										
BORON, TOTAL	µg/L										
CALCIUM, TOTAL	µg/L										
CHLORIDE, TOTAL	mg/L						11.8 J		3.0		17.1
FLUORIDE, TOTAL	mg/L										
SULFATE, TOTAL	mg/L										
TOTAL DISSOLVED SOLIDS	mg/L						487				

**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.
8. If all background values are less than the Practical Quantitation Limit (PQL) then the Double Quantification Rule (DQR) is used.
9. 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: JTR  
Reviewed By: JSI

**Table 5**  
**October 2025 Detection Monitoring Results**  
**SCL4A - Landfill Cell 4A**  
**Sioux Energy Center, St. Charles County, MO**

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS							
		BMW-1S	BMW-3S	Prediction Limit UG-3	UG-3	Prediction Limit TMW-1	TMW-1	Prediction Limit TMW-2	TMW-2	Prediction Limit TMW-3	TMW-3
<b>October 2025 Detection Monitoring Results</b>											
DATE	NA	10/6/2025	10/6/2025	NA	10/7/2025	NA	10/8/2025	NA	10/6/2025	NA	10/6/2025
pH	SU	6.68	6.85	6.56 - 7.38	7.21	6.608 -7.420	7.20	6.569 - 7.341	7.01	6.614 - 7.356	6.93
BORON, TOTAL	µg/L	68.5 J	62.1 J	1,077.1	340	DQR	81.5 J	DQR	91.7 J	109.95	96.0 J
CALCIUM, TOTAL	µg/L	168,000	129,000	169,446	123,000	124,749	119,000	135,544	127,000	143,430	127,000
CHLORIDE, TOTAL	mg/L	11.4	9.6	93.547	13.9	12.8	6.6	6.7177	5.7	19.1	16.4
FLUORIDE, TOTAL	mg/L	0.27	0.30	0.39	0.28	0.46972	0.40	0.42784	0.30	0.37	0.30
SULFATE, TOTAL	mg/L	39.2	35.6	134.33	78.9	69.253	63.9	81.009	25.4	62.512	44.9
TOTAL DISSOLVED SOLIDS	mg/L	596	477	655.81	500	504.26	461	508.6	444	499.38	463

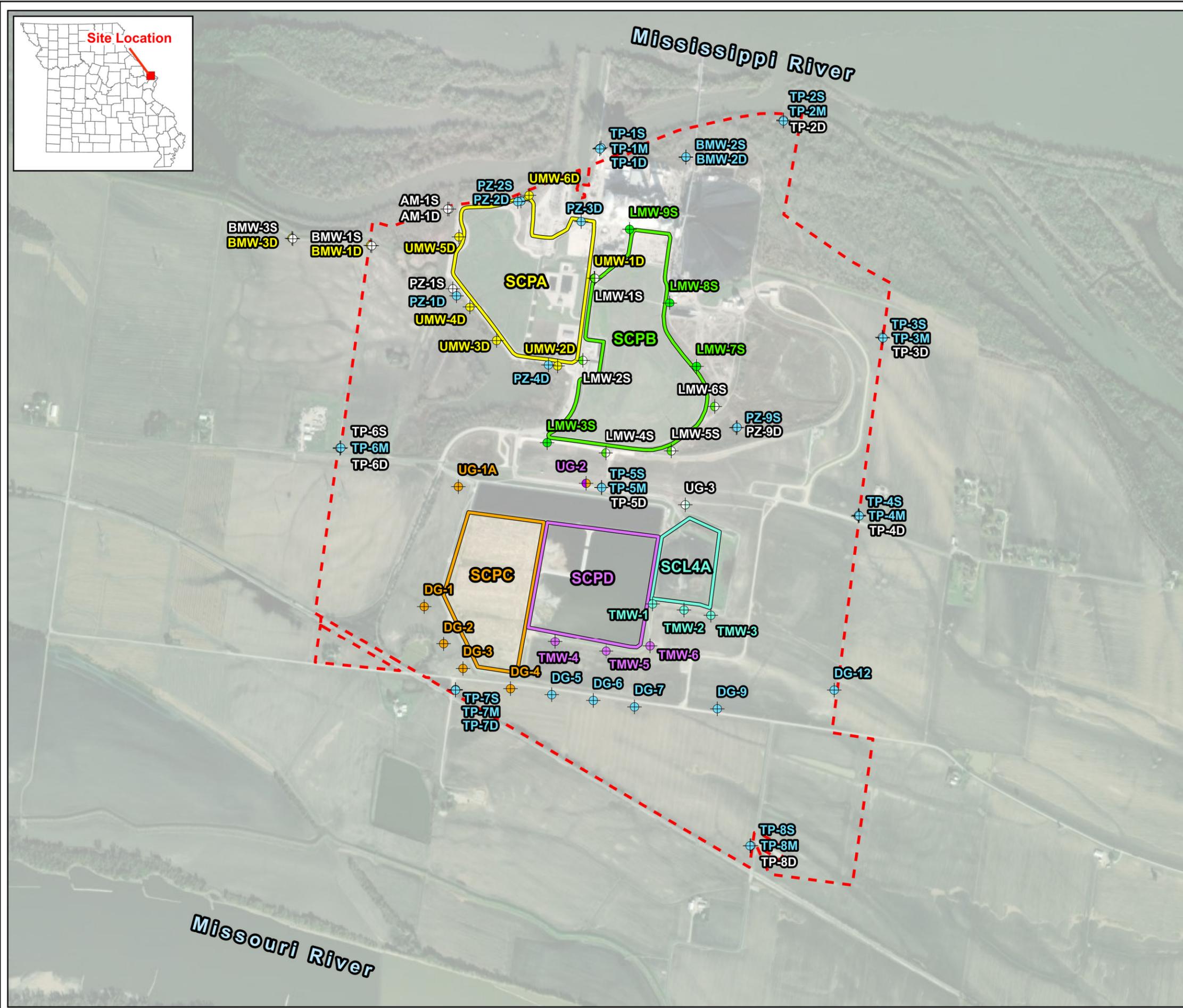
**NOTES:**

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. DQR - 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.
6. There were no initial exceedances identified in the October 2025 Detection Monitoring results, therefore, no verification sampling was conducted.

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

# Figures

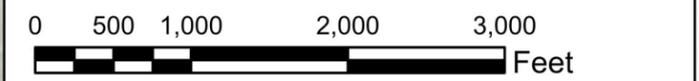
TITLE  
**SIoux ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP**



- 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.



PROJECT  
 CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT  
 AMEREN MISSOURI  
 SIOUX ENERGY CENTER

	DESIGN	JSI	YYYY-MM-DD	2025-12-04
	PREPARED	JSI	PROJECT No.	23009-25
	REVIEW	GTM	<b>FIGURE 1</b>	
	APPROVED	MNH		

Path: C:\Users\CramMosey\Rocksmith Geoenvironmenting LLC\202007 - Ameren GW - Documents\400 - Drawings - Figures\4.3-SECC\4.3.2 - Production\Other Maps\Figure 1 - SEC Well Locations.aprx

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

# Appendix A

## Laboratory Analytical Data



February 21, 2025

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

RE: Project: AMEREN SCL4A-VERIFICATION  
Pace Project No.: 60469213

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

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### **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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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60469213001	S-TMW-1	Water	02/07/25 12:00	02/08/25 05:44
60469213002	S-TMW-2	Water	02/06/25 13:00	02/08/25 05:44
60469213003	S-TMW-3	Water	02/06/25 12:05	02/08/25 05:44
60469213004	S-UG-3	Water	02/06/25 15:37	02/08/25 05:44
60469213005	S-SCL4A-DUP-1	Water	02/07/25 08:00	02/08/25 05:44
60469213006	S-SCL4A-FB-1	Water	02/06/25 13:57	02/08/25 05:44

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60469213001	S-TMW-1	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60469213002	S-TMW-2	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	1	PASI-K
60469213003	S-TMW-3	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60469213004	S-UG-3	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60469213005	S-SCL4A-DUP-1	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60469213006	S-SCL4A-FB-1	EPA 200.7	ARMN	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Sample: S-TMW-1 Lab ID: 60469213001 Collected: 02/07/25 12:00 Received: 02/08/25 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	<b>172000</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:29	7440-70-2	
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>559</b>	mg/L	13.3	13.3	1		02/14/25 14:44		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>7.7</b>	mg/L	1.0	0.53	1		02/13/25 11:31	16887-00-6	
Fluoride	<b>0.48</b>	mg/L	0.20	0.12	1		02/13/25 11:31	16984-48-8	
Sulfate	<b>61.3</b>	mg/L	10.0	5.5	10		02/13/25 11:46	14808-79-8	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Sample: S-TMW-2 Lab ID: 60469213002 Collected: 02/06/25 13:00 Received: 02/08/25 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	<b>120000</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:31	7440-70-2	
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>448</b>	mg/L	13.3	13.3	1		02/14/25 14:43		H1
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>4.8</b>	mg/L	1.0	0.53	1		02/13/25 12:01	16887-00-6	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Sample: S-TMW-3 Lab ID: 60469213003 Collected: 02/06/25 12:05 Received: 02/08/25 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Calcium	<b>120000</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:33	7440-70-2	
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	<b>471</b>	mg/L	13.3	13.3	1		02/14/25 14:43		H1
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<b>17.7</b>	mg/L	1.0	0.53	1		02/13/25 12:16	16887-00-6	
Fluoride	<b>0.36</b>	mg/L	0.20	0.12	1		02/13/25 12:16	16984-48-8	
Sulfate	<b>44.9</b>	mg/L	10.0	5.5	10		02/13/25 12:30	14808-79-8	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Sample: S-UG-3 Lab ID: 60469213004 Collected: 02/06/25 15:37 Received: 02/08/25 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	<b>112000</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:35	7440-70-2	M1,P6
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>497</b>	mg/L	13.3	13.3	1		02/14/25 14:43		H1
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>18.1</b>	mg/L	10.0	5.3	10		02/13/25 09:17	16887-00-6	M1,R1
Fluoride	<b>0.39</b>	mg/L	0.20	0.12	1		02/13/25 09:03	16984-48-8	M1
Sulfate	<b>77.7</b>	mg/L	10.0	5.5	10		02/13/25 09:17	14808-79-8	M1

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Sample: S-SCL4A-DUP-1 Lab ID: 60469213005 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
<b>200.7 Metals, Total</b>	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	<b>125J</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:46	7440-70-2	B
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>11.0</b>	mg/L	5.0	5.0	1		02/14/25 14:45		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>&lt;0.53</b>	mg/L	1.0	0.53	1		02/13/25 12:45	16887-00-6	
Fluoride	<b>&lt;0.12</b>	mg/L	0.20	0.12	1		02/13/25 12:45	16984-48-8	
Sulfate	<b>&lt;0.55</b>	mg/L	1.0	0.55	1		02/13/25 12:45	14808-79-8	

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**ANALYTICAL RESULTS**

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

**Sample: S-SCL4A-FB-1**      **Lab ID: 60469213006**      Collected: 02/06/25 13:57      Received: 02/08/25 05:44      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>									
Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City									
Calcium	<b>122000</b>	ug/L	200	26.9	1	02/10/25 08:27	02/11/25 21:48	7440-70-2	M1,P6
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C Pace Analytical Services - Kansas City									
Total Dissolved Solids	<b>535</b>	mg/L	13.3	13.3	1		02/14/25 14:43		H1
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City									
Chloride	<b>7.6</b>	mg/L	1.0	0.53	1		02/13/25 13:15	16887-00-6	
Fluoride	<b>0.48</b>	mg/L	0.20	0.12	1		02/13/25 13:15	16984-48-8	
Sulfate	<b>61.9</b>	mg/L	10.0	5.5	10		02/15/25 04:48	14808-79-8	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

QC Batch: 924484 Analysis Method: EPA 200.7  
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
 Laboratory: Pace Analytical Services - Kansas City  
 Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213005, 60469213006

METHOD BLANK: 3661264 Matrix: Water  
 Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213005, 60469213006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	28.8J	200	26.9	02/11/25 21:00	

LABORATORY CONTROL SAMPLE: 3661265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9740	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3661266 3661267

Parameter	Units	60469039001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	192000	10000	10000	197000	196000	51	35	70-130	1	20	M1

MATRIX SPIKE SAMPLE: 3661268

Parameter	Units	60469213006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	122000	10000	128000	59	70-130	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3661291 3661292

Parameter	Units	60469215002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	159000	10000	10000	160000	182000	4	233	70-130	13	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3661293 3661294

Parameter	Units	60469213004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	112000	10000	10000	120000	118000	82	62	70-130	2	20	M1

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

QC Batch:	925074	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213006

METHOD BLANK: 3663710 Matrix: Water  
 Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	02/14/25 14:41	

LABORATORY CONTROL SAMPLE: 3663711

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

SAMPLE DUPLICATE: 3663712

Parameter	Units	60469032001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	654	672	3	10	H1

SAMPLE DUPLICATE: 3663713

Parameter	Units	60469213004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	497	503	1	10	H1

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

QC Batch: 925077	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60469213005

METHOD BLANK: 3663721 Matrix: Water

Associated Lab Samples: 60469213005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	02/14/25 14:45	

LABORATORY CONTROL SAMPLE: 3663722

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3663723

Parameter	Units	60469215002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	644	655	2	10	

SAMPLE DUPLICATE: 3663724

Parameter	Units	60469216001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	674	744	10	10	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A-VERIFICATION  
Pace Project No.: 60469213

QC Batch: 924822 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Laboratory: Pace Analytical Services - Kansas City  
Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213005, 60469213006

METHOD BLANK: 3662520 Matrix: Water  
Associated Lab Samples: 60469213001, 60469213002, 60469213003, 60469213004, 60469213005, 60469213006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	02/13/25 04:37	
Fluoride	mg/L	<0.12	0.20	0.12	02/13/25 04:37	
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
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3662522 3662523

Parameter	Units	60469213004		60469213003		60469213004		60469213005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.										
Chloride	mg/L	18.1	50	50	65.9	82.1	95	128	80-120	22	15	M1, R1	
Fluoride	mg/L	0.39	2.5	2.5	3.6	3.2	130	113	80-120	13	15	M1	
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		60469215003		60469215004		60469215005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.										
Chloride	mg/L	12.8	5	5	17.9	18.4	102	112	80-120	3	15		
Fluoride	mg/L	0.32	2.5	2.5	2.8	3.1	101	110	80-120	8	15		
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		60469216002		60469216003		60469216004		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.										
Chloride	mg/L	183	5	5	185	185	43	45	80-120	0	15	E, M1	
Fluoride	mg/L	0.24	2.5	2.5	2.6	2.7	95	98	80-120	2	15		
Sulfate	mg/L	78.9	5	5	79.5	83.9	14	101	80-120	5	15	E, M1	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

SAMPLE DUPLICATE: 3662524

Parameter	Units	60469213004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	18.1	17.1	6	15	
Fluoride	mg/L	0.39	0.37	5	15	
Sulfate	mg/L	77.7	73.5	5	15	

SAMPLE DUPLICATE: 3662527

Parameter	Units	60469215002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	12.8	12.6	1	15	
Fluoride	mg/L	0.32	0.31	3	15	
Sulfate	mg/L	75.7	74.1	2	15	

SAMPLE DUPLICATE: 3662530

Parameter	Units	60469216001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	183	183	0	15	E
Fluoride	mg/L	0.24	0.23	3	15	
Sulfate	mg/L	78.9	78.8	0	15	E

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## QUALIFIERS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

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### 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.

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.

R1 RPD value was outside control limits.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60469213

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60469213001	S-TMW-1	EPA 200.7	924484	EPA 200.7	924512
60469213002	S-TMW-2	EPA 200.7	924484	EPA 200.7	924512
60469213003	S-TMW-3	EPA 200.7	924484	EPA 200.7	924512
60469213004	S-UG-3	EPA 200.7	924484	EPA 200.7	924512
60469213005	S-SCL4A-DUP-1	EPA 200.7	924484	EPA 200.7	924512
60469213006	S-SCL4A-FB-1	EPA 200.7	924484	EPA 200.7	924512
60469213001	S-TMW-1	SM 2540C	925074		
60469213002	S-TMW-2	SM 2540C	925074		
60469213003	S-TMW-3	SM 2540C	925074		
60469213004	S-UG-3	SM 2540C	925074		
60469213005	S-SCL4A-DUP-1	SM 2540C	925077		
60469213006	S-SCL4A-FB-1	SM 2540C	925074		
60469213001	S-TMW-1	EPA 300.0	924822		
60469213002	S-TMW-2	EPA 300.0	924822		
60469213003	S-TMW-3	EPA 300.0	924822		
60469213004	S-UG-3	EPA 300.0	924822		
60469213005	S-SCL4A-DUP-1	EPA 300.0	924822		
60469213006	S-SCL4A-FB-1	EPA 300.0	924822		

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WO#: 60469213



DC#\_ Title: ENV-FRM-LENE-0009\_Sar  
Revision: 2 Effective Date: 01/12/



Client Name: RockSmith Geoengineering, LLC

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  PELL

Thermometer Used: T301 Type of Ice:  Wet  Blue  None

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

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

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: \_\_\_\_\_





# Memorandum

February 26, 2025

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**To:** Project File  
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 – SCL4A Verification – Data Package 60469213**

---

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 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).
- When a compound was analyzed outside of hold time controls, the 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 Name: Ameren SCL4A Verification  
 Reviewer: G. Morey

Project Manager: J. Ingram  
 Project Number: 23009-24  
 Validation Date: 2/26/2025

Laboratory: Pace Analytical SDG #: 6049213  
 Analytical Method (type and no.): EPA 200.7 (Calcium); EPA 300.0 (Anions); SM 2540C (TDS)  
 Matrix:  Air  Soil/Sed.  Water  Waste   
 Sample Names S-TMW-1, S-TMW-2, S-TMW-3, S-UG-3, S-SCL4A-DUP-1, S-SCL4A-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>2/6/2025 - 2/7/2025</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM/JTR</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Spec Cond, Turb, Temp, DO, ORP</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>No lab narrative.</u>

Note Deficiencies: Based on a review of the data, it appears that results for S-SCL4A-DUP-1 and S-SCL4A-FB-1 are switched.

Subsequent reference to these results will be to the correct sample ID.

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Were hold times met for sample analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Were any matrix problems noted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

<b>Blanks</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Laboratory Control Sample (LCS)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Duplicates</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-DUP-1 collected @ S-TMW-1
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes

<b>Blind Standards</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes

**Comments/Notes:**

General:

TDS analyzed outside of hold time controls in several samples, results qualified as estimate.

Chloride and/or sulfate diluted in several samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

### Comments/Notes:

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#### Method Blank:

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3661264: calcium (28.8J). Associated with samples -001-006. Calcium at -005 detected < RL and 10x blank, result qualified as non-detect at RL. Other results > RL and 10x blank, no qualification necessary.

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#### Field Blank:

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S-SCL4A-FB-1 @ S-TMW-3: calcium (125J) and TDS (11.0). Results > RL and 10x blank, no qualification necessary.

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#### Duplicates:

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S-SCL4A-DUP-1 @ S-TMW-1: Field DUP RPD exceeds control limit (20%) for calcium, results qualified as estimates.

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Lab duplicate max RPD: 10%: TDS; 15%: chloride, fluoride, sulfate. Lab duplicate RPDs within control limits.

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#### MS/MSD:

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3661266/3661267: MS/MSD recoveries low for calcium. Associated with unrelated sample, no qualification necessary.

---

3661268: MS recovery low for calcium, associated with sample -006. Result qualified as estimate.

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3661291/3661292: MS recovery low, MSD recovery high for calcium. RPD within control limit. Associated with unrelated sample, no qualification necessary.

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3661293/3661294: MSD recovery low for calcium, MS recovery and RPD within control limits. No qualification necessary.

---

3662522/3662523: MSD recovery high for chloride, MS recovery within control limits, RPD exceeds control limits. Associated with sample -004 result qualified as estimate. MS recovery high for fluoride, MSD recovery and RPD within control limits, no qualification necessary. MSD recovery high for sulfate, MS recovery and RPD within control limits, no qualification necessary.

---

3662528/3662529: MS/MSD recovery low for chloride, RPD within control limits. MS recovery low for sulfate, MSD recovery and RPD within control limits. Associated with unrelated sample, no qualification necessary.

---





July 01, 2025

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

RE: Project: AMEREN SCL4A  
Pace Project No.: 60474942

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between May 09, 2025 and May 10, 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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: AMEREN SCL4A

Pace Project No.: 60474942

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### **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 SCL4A

Pace Project No.: 60474942

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60474942001	S-TMW-1	Water	05/08/25 14:06	05/10/25 06:51
60474942002	S-TMW-2	Water	05/09/25 13:50	05/10/25 06:51
60474942003	S-TMW-3	Water	05/09/25 13:03	05/10/25 06:51
60474942004	S-SCL4A-DUP-1	Water	05/09/25 08:00	05/10/25 06:51
60474942005	S-SCL4A-FB-1	Water	05/09/25 14:20	05/10/25 06:51
60474805016	S-UG-3	Water	05/08/25 12:10	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 SCL4A

Pace Project No.: 60474942

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60474942001	S-TMW-1	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
60474942002	S-TMW-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
60474942003	S-TMW-3	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
60474942004	S-SCL4A-DUP-1	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
60474942005	S-SCL4A-FB-1	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
60474805016	S-UG-3	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 SCL4A

Pace Project No.: 60474942

**Sample: S-TMW-1**      **Lab ID: 60474942001**      Collected: 05/08/25 14:06      Received: 05/10/25 06:51      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>75.3J</b>	ug/L	100	6.4	1	05/16/25 11:44	05/23/25 16:37	7440-42-8	
Calcium	<b>118000</b>	ug/L	200	26.9	1	05/16/25 11:44	05/23/25 16:37	7440-70-2	M1,P6
Iron	<b>16.4J</b>	ug/L	50.0	9.1	1	05/16/25 11:44	05/23/25 16:37	7439-89-6	
Magnesium	<b>22200</b>	ug/L	50.0	20.1	1	05/16/25 11:44	05/23/25 16:37	7439-95-4	
Manganese	<b>371</b>	ug/L	5.0	0.39	1	05/16/25 11:44	05/23/25 16:37	7439-96-5	
Potassium	<b>4560</b>	ug/L	500	69.7	1	05/16/25 11:44	05/23/25 16:37	7440-09-7	
Sodium	<b>4050</b>	ug/L	500	115	1	05/16/25 11:44	05/23/25 16:37	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>359</b>	mg/L	20.0	10.5	1		05/17/25 00:28		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>466</b>	mg/L	10.0	10.0	1		05/14/25 16:08		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<b>10.8</b>	mg/L	1.0	0.53	1		06/05/25 21:30	16887-00-6	H1
Fluoride	<b>0.34</b>	mg/L	0.20	0.12	1		06/05/25 21:30	16984-48-8	H1
Sulfate	<b>57.3</b>	mg/L	10.0	5.5	10		06/11/25 05:30	14808-79-8	H1

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**ANALYTICAL RESULTS**

Project: AMEREN SCL4A

Pace Project No.: 60474942

**Sample: S-TMW-2**      **Lab ID: 60474942002**      Collected: 05/09/25 13:50      Received: 05/10/25 06:51      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>78.4J</b>	ug/L	100	6.4	1	05/16/25 11:44	05/23/25 16:48	7440-42-8	
Calcium	<b>112000</b>	ug/L	200	26.9	1	05/16/25 11:44	05/23/25 16:48	7440-70-2	
Iron	<b>911</b>	ug/L	50.0	9.1	1	05/16/25 11:44	05/23/25 16:48	7439-89-6	
Magnesium	<b>20400</b>	ug/L	50.0	20.1	1	05/16/25 11:44	05/23/25 16:48	7439-95-4	
Manganese	<b>202</b>	ug/L	5.0	0.39	1	05/16/25 11:44	05/23/25 16:48	7439-96-5	
Potassium	<b>4720</b>	ug/L	500	69.7	1	05/16/25 11:44	05/23/25 16:48	7440-09-7	
Sodium	<b>3520</b>	ug/L	500	115	1	05/16/25 11:44	05/23/25 16:48	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>392</b>	mg/L	20.0	10.5	1		05/17/25 00:34		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>450</b>	mg/L	10.0	10.0	1		05/15/25 16:58		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<b>6.4</b>	mg/L	1.0	0.53	1		06/06/25 19:47	16887-00-6	
Fluoride	<b>0.22</b>	mg/L	0.20	0.12	1		06/06/25 19:47	16984-48-8	
Sulfate	<b>27.2</b>	mg/L	10.0	5.5	10		06/06/25 19:59	14808-79-8	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60474942

Sample: S-TMW-3 Lab ID: 60474942003 Collected: 05/09/25 13:03 Received: 05/10/25 06:51 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>83.5J</b>	ug/L	100	6.4	1	05/16/25 11:44	05/23/25 16:50	7440-42-8	
Calcium	<b>121000</b>	ug/L	200	26.9	1	05/16/25 11:44	05/23/25 16:50	7440-70-2	
Iron	<b>644</b>	ug/L	50.0	9.1	1	05/16/25 11:44	05/23/25 16:50	7439-89-6	
Magnesium	<b>22200</b>	ug/L	50.0	20.1	1	05/16/25 11:44	05/23/25 16:50	7439-95-4	
Manganese	<b>193</b>	ug/L	5.0	0.39	1	05/16/25 11:44	05/23/25 16:50	7439-96-5	
Potassium	<b>5990</b>	ug/L	500	69.7	1	05/16/25 11:44	05/23/25 16:50	7440-09-7	
Sodium	<b>4550</b>	ug/L	500	115	1	05/16/25 11:44	05/23/25 16:50	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>375</b>	mg/L	20.0	10.5	1		05/17/25 00:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>476</b>	mg/L	10.0	10.0	1		05/15/25 16:58		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<b>16.8</b>	mg/L	1.0	0.53	1		06/11/25 08:03	16887-00-6	H1
Fluoride	<b>0.16J</b>	mg/L	0.20	0.12	1		06/11/25 08:03	16984-48-8	H1
Sulfate	<b>45.0</b>	mg/L	10.0	5.5	10		06/11/25 08:14	14808-79-8	H1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60474942

Sample: S-SCL4A-DUP-1 Lab ID: 60474942004 Collected: 05/09/25 08:00 Received: 05/10/25 06:51 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>80.9J</b>	ug/L	100	6.4	1	05/16/25 11:44	05/23/25 16:52	7440-42-8	
Calcium	<b>119000</b>	ug/L	200	26.9	1	05/16/25 11:44	05/23/25 16:52	7440-70-2	
Iron	<b>594</b>	ug/L	50.0	9.1	1	05/16/25 11:44	05/23/25 16:52	7439-89-6	
Magnesium	<b>21600</b>	ug/L	50.0	20.1	1	05/16/25 11:44	05/23/25 16:52	7439-95-4	
Manganese	<b>212</b>	ug/L	5.0	0.39	1	05/16/25 11:44	05/23/25 16:52	7439-96-5	
Potassium	<b>5770</b>	ug/L	500	69.7	1	05/16/25 11:44	05/23/25 16:52	7440-09-7	
Sodium	<b>4400</b>	ug/L	500	115	1	05/16/25 11:44	05/23/25 16:52	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>373</b>	mg/L	20.0	10.5	1		05/17/25 00:46		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>479</b>	mg/L	10.0	10.0	1		05/15/25 16:58		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<b>16.1</b>	mg/L	1.0	0.53	1		06/06/25 20:35	16887-00-6	
Fluoride	<b>0.20J</b>	mg/L	0.20	0.12	1		06/06/25 20:35	16984-48-8	
Sulfate	<b>45.0</b>	mg/L	10.0	5.5	10		06/06/25 21:10	14808-79-8	

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**ANALYTICAL RESULTS**

Project: AMEREN SCL4A

Pace Project No.: 60474942

**Sample: S-SCL4A-FB-1**      **Lab ID: 60474942005**      Collected: 05/09/25 14:20      Received: 05/10/25 06:51      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<6.4	ug/L	100	6.4	1	05/16/25 11:44	05/23/25 16:54	7440-42-8	
Calcium	<26.9	ug/L	200	26.9	1	05/16/25 11:44	05/23/25 16:54	7440-70-2	
Iron	<9.1	ug/L	50.0	9.1	1	05/16/25 11:44	05/23/25 16:54	7439-89-6	
Magnesium	<20.1	ug/L	50.0	20.1	1	05/16/25 11:44	05/23/25 16:54	7439-95-4	
Manganese	<0.39	ug/L	5.0	0.39	1	05/16/25 11:44	05/23/25 16:54	7439-96-5	
Potassium	<69.7	ug/L	500	69.7	1	05/16/25 11:44	05/23/25 16:54	7440-09-7	
Sodium	<115	ug/L	500	115	1	05/16/25 11:44	05/23/25 16:54	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<10.5	mg/L	20.0	10.5	1		05/17/25 00:49		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		05/15/25 16:58		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<0.53	mg/L	1.0	0.53	1		06/06/25 21:22	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		06/06/25 21:22	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		06/06/25 21:22	14808-79-8	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60474942

**Sample: S-UG-3**      **Lab ID: 60474805016**      Collected: 05/08/25 12:10      Received: 05/10/25 06:51      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>282</b>	ug/L	100	6.4	1	05/22/25 06:12	06/03/25 15:40	7440-42-8	
Calcium	<b>137000</b>	ug/L	200	26.9	1	05/22/25 06:12	06/03/25 15:40	7440-70-2	
Iron	<b>&lt;9.1</b>	ug/L	50.0	9.1	1	05/22/25 06:12	06/03/25 15:40	7439-89-6	
Magnesium	<b>26600</b>	ug/L	50.0	20.1	1	05/22/25 06:12	06/03/25 15:40	7439-95-4	
Manganese	<b>414</b>	ug/L	5.0	0.39	1	05/22/25 06:12	06/03/25 15:40	7439-96-5	
Potassium	<b>4020</b>	ug/L	500	69.7	1	05/22/25 06:12	06/03/25 15:40	7440-09-7	
Sodium	<b>18500</b>	ug/L	500	115	1	05/22/25 06:12	06/03/25 15:40	7440-23-5	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>379</b>	mg/L	20.0	10.5	1		05/19/25 21:11		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>576</b>	mg/L	10.0	10.0	1		05/14/25 16:10		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	<b>24.8</b>	mg/L	10.0	5.3	10		06/04/25 01:47	16887-00-6	B
Fluoride	<b>&lt;0.12</b>	mg/L	0.20	0.12	1		06/04/25 01:33	16984-48-8	
Sulfate	<b>89.7</b>	mg/L	10.0	5.5	10		06/04/25 01:47	14808-79-8	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60474942

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
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 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	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	555	mg/L	20.0	10.5	1		05/16/25 16:37		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	615	mg/L	13.3	13.3	1		05/13/25 15:27		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 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 SCL4A

Pace Project No.: 60474942

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
<b>200.7 Metals, Total</b>		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	
<b>2320B Alkalinity</b>		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		
<b>2540C Total Dissolved Solids</b>		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		
<b>300.0 IC Anions 28 Days</b>		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 SCL4A

Pace Project No.: 60474942

QC Batch: 935320

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942001, 60474942002, 60474942003, 60474942004, 60474942005

METHOD BLANK: 3707170

Matrix: Water

Associated Lab Samples: 60474942001, 60474942002, 60474942003, 60474942004, 60474942005

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		3707172		3707173		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result						
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		3707174		3707175		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result						
Boron	ug/L	75.3J	1000	1000	942	927	87	85	70-130	2	20		

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60474942

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3707174												3707175	
Parameter	Units	60474942001		MS	MSD	MS	MSD	% Rec	% Rec	% Rec	Max	Qual	
		Result	Conc.	Spike	Conc.	Result	Result	Result	Result	Limits	RPD		RPD
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		Spike	MS	MS	% Rec	Qualifiers	
		Result	Conc.		Result	% Rec	Limits		
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 SCL4A

Pace Project No.: 60474942

QC Batch: 935894

Analysis Method: EPA 200.7

QC Batch 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		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
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 SCL4A

Pace Project No.: 60474942

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 SCL4A

Pace Project No.: 60474942

QC Batch: 936019

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474805016

METHOD BLANK: 3710296

Matrix: Water

Associated Lab Samples: 60474805016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	14.5J	100	6.4	06/03/25 15:27	
Calcium	ug/L	<26.9	200	26.9	06/03/25 15:27	
Iron	ug/L	9.5J	50.0	9.1	06/03/25 15:27	
Magnesium	ug/L	<20.1	50.0	20.1	06/03/25 15:27	
Manganese	ug/L	<0.39	5.0	0.39	06/03/25 15:27	
Potassium	ug/L	<69.7	500	69.7	06/03/25 15:27	
Sodium	ug/L	<115	500	115	06/03/25 15:27	

LABORATORY CONTROL SAMPLE: 3710297

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	954	95	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	10100	101	85-115	
Magnesium	ug/L	10000	9970	100	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9850	99	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3710298 3710299

Parameter	Units	60474805012		3710299		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Boron	ug/L	7270	1000	8000	8370	73	110	70-130	5	20	
Calcium	ug/L	147000	10000	152000	160000	43	123	70-130	5	20	M1
Iron	ug/L	10100	10000	19400	20200	94	101	70-130	4	20	
Magnesium	ug/L	36800	10000	45100	47400	82	106	70-130	5	20	
Manganese	ug/L	1060	1000	2040	2020	98	96	70-130	1	20	
Potassium	ug/L	5090	10000	14600	14900	95	98	70-130	2	20	
Sodium	ug/L	35100	10000	43500	45600	84	105	70-130	5	20	

MATRIX SPIKE SAMPLE: 3710300

Parameter	Units	60475410001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	ND	1000	1200J	97	70-130	
Calcium	ug/L	276000	10000	283000	69	70-130	M1

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60474942

MATRIX SPIKE SAMPLE:		3710300					
Parameter	Units	60475410001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	8080	10000	11800	37	70-130	M1
Magnesium	ug/L	46800	10000	55700	89	70-130	
Manganese	ug/L	ND	1000	1020	91	70-130	
Potassium	ug/L	ND	10000	40800J	4	70-130	M1
Sodium	ug/L	9190000	10000	9140000	-459	70-130	M1

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60474942

QC Batch: 935400

Analysis Method: SM 2320B

QC Batch 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 SCL4A

Pace Project No.: 60474942

QC Batch: 935488

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942001, 60474942002, 60474942003, 60474942004, 60474942005

METHOD BLANK: 3708147

Matrix: Water

Associated Lab Samples: 60474942001, 60474942002, 60474942003, 60474942004, 60474942005

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 SCL4A

Pace Project No.: 60474942

QC Batch: 935651

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474805016

METHOD BLANK: 3708733

Matrix: Water

Associated Lab Samples: 60474805016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	05/19/25 19:51	

LABORATORY CONTROL SAMPLE: 3708734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	505	101	90-110	

SAMPLE DUPLICATE: 3708735

Parameter	Units	60474940004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	<10.5		10	

SAMPLE DUPLICATE: 3708736

Parameter	Units	60474805012 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	305	302	1	10	

SAMPLE DUPLICATE: 3708737

Parameter	Units	60474899001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	584	607	4	10	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60474942

QC Batch: 934870

Analysis Method: SM 2540C

QC Batch 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 SCL4A

Pace Project No.: 60474942

QC Batch: 935019

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942001

METHOD BLANK: 3705708

Matrix: Water

Associated Lab Samples: 60474942001

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 SCL4A

Pace Project No.: 60474942

QC Batch: 935020

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474805016

METHOD BLANK: 3705712

Matrix: Water

Associated Lab Samples: 60474805016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/14/25 16:09	

LABORATORY CONTROL SAMPLE: 3705713

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

SAMPLE DUPLICATE: 3705714

Parameter	Units	60474805012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	749	741	1	10	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60474942

QC Batch: 935176

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942002, 60474942003, 60474942004, 60474942005

METHOD BLANK: 3706328

Matrix: Water

Associated Lab Samples: 60474942002, 60474942003, 60474942004, 60474942005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/15/25 16:54	

LABORATORY CONTROL SAMPLE: 3706329

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

SAMPLE DUPLICATE: 3706330

Parameter	Units	60474940002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	747	737	1	10	

SAMPLE DUPLICATE: 3706331

Parameter	Units	60474941004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	619	623	1	10	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60474942

QC Batch: 937191

Analysis Method: EPA 300.0

QC Batch 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		3715443		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	50.1	50	96.0	89.8	92	79	80-120	7	15	M1
Fluoride	mg/L	ND	25	21.9	20.4	85	79	80-120	7	15	M1
Sulfate	mg/L	1780	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 SCL4A

Pace Project No.: 60474942

QC Batch: 937211

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474805016

METHOD BLANK: 3715496

Matrix: Water

Associated Lab Samples: 60474805016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.59J	1.0	0.53	06/03/25 20:28	
Fluoride	mg/L	<0.12	0.20	0.12	06/03/25 20:28	
Sulfate	mg/L	<0.55	1.0	0.55	06/03/25 20:28	

LABORATORY CONTROL SAMPLE: 3715497

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	2.6	103	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3715498 3715499

Parameter	Units	60474805012		3715498		3715499		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	42.4	100	100	132	132	90	90	80-120	0	15		
Fluoride	mg/L	0.16J	2.5	2.5	2.4	2.4	90	91	80-120	1	15		
Sulfate	mg/L	237	100	100	330	336	93	99	80-120	2	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3715501 3715502

Parameter	Units	60474895008		3715501		3715502		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	14.1	5	5	19.5	19.5	106	107	80-120	0	15		
Fluoride	mg/L	0.14J	2.5	2.5	2.7	2.7	104	104	80-120	0	15		
Sulfate	mg/L	10.7	5	5	15.7	15.7	101	101	80-120	0	15		

SAMPLE DUPLICATE: 3715500

Parameter	Units	60474805012 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	42.4	42.5	0	15	
Fluoride	mg/L	0.16J	0.17J		15	
Sulfate	mg/L	237	236	0	15	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60474942

SAMPLE DUPLICATE: 3715503

Parameter	Units	60474895008 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	14.1	14.3	1	15	
Fluoride	mg/L	0.14J	0.14J		15	
Sulfate	mg/L	10.7	10.8	1	15	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60474942

QC Batch: 937354

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942001

METHOD BLANK: 3716100

Matrix: Water

Associated Lab Samples: 60474942001

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		3716102		3716103		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result						
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		3716105		3716106		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result						
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 SCL4A

Pace Project No.: 60474942

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 SCL4A

Pace Project No.: 60474942

QC Batch:	937359	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60474942002, 60474942003, 60474942004, 60474942005

METHOD BLANK: 3716114 Matrix: Water  
 Associated Lab Samples: 60474942002, 60474942003, 60474942004, 60474942005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/06/25 15:12	
Fluoride	mg/L	<0.12	0.20	0.12	06/06/25 15:12	
Sulfate	mg/L	<0.55	1.0	0.55	06/06/25 15:12	

LABORATORY CONTROL SAMPLE: 3716115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3716116 3716117

Parameter	Units	60474941004		3716117		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	25.1	50	69.1	69.3	88	88	80-120	0	15	H1
Fluoride	mg/L	0.18J	2.5	1.8	1.8	63	67	80-120	4	15	H1,M1
Sulfate	mg/L	74.8	50	122	122	95	94	80-120	0	15	H1

SAMPLE DUPLICATE: 3716118

Parameter	Units	60474941004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	25.1	25.6	2	15	
Fluoride	mg/L	0.18J	0.17J		15	
Sulfate	mg/L	74.8	75.3	1	15	

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## QUALIFIERS

Project: AMEREN SCL4A

Pace Project No.: 60474942

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### 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.

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 SCL4A

Pace Project No.: 60474942

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
60474942001	S-TMW-1	EPA 200.7	935320	EPA 200.7	935524
60474942002	S-TMW-2	EPA 200.7	935320	EPA 200.7	935524
60474942003	S-TMW-3	EPA 200.7	935320	EPA 200.7	935524
60474942004	S-SCL4A-DUP-1	EPA 200.7	935320	EPA 200.7	935524
60474942005	S-SCL4A-FB-1	EPA 200.7	935320	EPA 200.7	935524
60474805016	S-UG-3	EPA 200.7	936019	EPA 200.7	936101
60474805001	S-BMW-1S	SM 2320B	935400		
60474805002	S-BMW-3S	SM 2320B	935400		
60474942001	S-TMW-1	SM 2320B	935488		
60474942002	S-TMW-2	SM 2320B	935488		
60474942003	S-TMW-3	SM 2320B	935488		
60474942004	S-SCL4A-DUP-1	SM 2320B	935488		
60474942005	S-SCL4A-FB-1	SM 2320B	935488		
60474805016	S-UG-3	SM 2320B	935651		
60474805001	S-BMW-1S	SM 2540C	934870		
60474805002	S-BMW-3S	SM 2540C	934870		
60474942001	S-TMW-1	SM 2540C	935019		
60474942002	S-TMW-2	SM 2540C	935176		
60474942003	S-TMW-3	SM 2540C	935176		
60474942004	S-SCL4A-DUP-1	SM 2540C	935176		
60474942005	S-SCL4A-FB-1	SM 2540C	935176		
60474805016	S-UG-3	SM 2540C	935020		
60474805001	S-BMW-1S	EPA 300.0	937191		
60474805002	S-BMW-3S	EPA 300.0	937191		
60474942001	S-TMW-1	EPA 300.0	937354		
60474942002	S-TMW-2	EPA 300.0	937359		
60474942003	S-TMW-3	EPA 300.0	937359		
60474942004	S-SCL4A-DUP-1	EPA 300.0	937359		
60474942005	S-SCL4A-FB-1	EPA 300.0	937359		
60474805016	S-UG-3	EPA 300.0	937211		

### REPORT OF LABORATORY ANALYSIS

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WO#: 60474942



DC#\_Title: ENV-FRM-LENE-0009\_Sample (

Revision: 2

Effective Date: 01/12/2022

Issued By: Lenexa

Client Name: Rocksmitz, Georing

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 1.1/0.3 Corr. Factor 0.1 Corrected 1.2/0.4/0.8

Date and initials of person examining contents:

Temperature should be above freezing to 6°C 0-7

PN 5/12/25

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: \_\_\_\_\_









# Memorandum

July 31, 2025

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**To:** Project File  
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 – SCL4A – Data Package 60474942**

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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 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 matrix spike recovery was less than 10%, and the associated sample result was a non-detect, the result was rejected (R).

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering  
 Project Name: Ameren SCL4A  
 Reviewer: J. Rasmussen

Project Manager: J. Ingram  
 Project Number: 23009-25  
 Validation Date: 7/31/2025

Laboratory: Pace Analytical SDG #: 60474942  
 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-1, S-TMW-2, S-TMW-3, S-SCL4A-DUP-1, S-SCL4A-FB-1, S-UG-3, 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>5/07/2025 - 5/09/2025</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM/JTR</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>_____</u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Spec Cond, Turb, Temp, DO, ORP</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>No lab narrative.</u>
Note Deficiencies: <u>_____</u>				

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
b) Were hold times met for sample analysis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Were any matrix problems noted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

<b>Blanks</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-FB-1 @ S-TMW-2
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Laboratory Control Sample (LCS)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Duplicates</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-DUP-1 @ S-TMW-2
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were field dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

<b>Blind Standards</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes

**Comments/Notes:**

General:

Chloride, fluoride and sulfate analyzed outside of hole time on samples -001 and -003. Results qualified as estimates.

Chloride and/or sulfate diluted in some samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

### Comments/Notes:

#### Method blanks:

3710296: Boron (14.5J), iron (9.5J), associated with sample -016. Boron result > RL and 10x blank, no qualification necessary.

Iron result is a non-detect, no qualification necessary.

3715496: Chloride (0.59J), associated with sample -016. Result > RL and 10x blank, no qualification necessary.

3716100: Chloride (0.54J), associated with sample -001. Result > RL and 10x blank, no qualification necessary.

#### Field blanks:

S-SCL4A-FB-1 @ S-TMW-2: No analytes detected, no qualifications necessary

#### Duplicate:

S-SCL4A-DUP-1 @ S-TMW-3: Field duplicate RPD precision criteria met.

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

3716104: Lab duplicate RPD exceeds control limits for fluoride, associated with unrelated sample. No qualifications necessary.

#### MS/MSD:

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

3707176: MS recovery low for calcium, associated with unrelated sample. No qualification necessary.

3709609/3709610: MS recovery below 10%, associated with sample -001. Result qualified as estimate.

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

3710298/3710299: MS recovery low for calcium, MSD and RPD within control limits. No qualification necessary.

3710300: MS recovery low for calcium, iron, potassium and sodium associated with unrelated sample. No qualifications necessary.

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

MS recovery high for sulfate, MS and RPD within control limits. No qualification necessary.

3716116/3716117: MS and MSD recovery low for fluoride, RPD is okay. Associated with unrelated sample, no qualification necessary.





July 25, 2025

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

RE: Project: AMEREN SCL4A-VERIFICATION  
Pace Project No.: 60478826

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

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### **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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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: AMEREN SCL4A-VERIFICATION  
Pace Project No.: 60478826

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60478826001	S-TMW-1	Water	07/10/25 14:38	07/11/25 07:09
60478826002	S-TMW-2	Water	07/10/25 09:45	07/11/25 07:09
60478826003	S-TMW-3	Water	07/10/25 11:25	07/11/25 07:09
60478826004	S-SCL4A-DUP-1	Water	07/10/25 00:00	07/11/25 07:09
60478826005	S-SCL4A-FB-1	Water	07/10/25 10:13	07/11/25 07:09

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### SAMPLE ANALYTE COUNT

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60478826001	S-TMW-1	SM 2540C	CAR	1	PASI-K
		EPA 300.0	MLD	1	PASI-K
60478826002	S-TMW-2	SM 2540C	CAR	1	PASI-K
		EPA 300.0	MLD	1	PASI-K
60478826003	S-TMW-3	SM 2540C	CAR	1	PASI-K
		EPA 300.0	MLD	1	PASI-K
60478826004	S-SCL4A-DUP-1	SM 2540C	CAR	1	PASI-K
		EPA 300.0	MLD	1	PASI-K
60478826005	S-SCL4A-FB-1	SM 2540C	CAR	1	PASI-K
		EPA 300.0	MLD	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Sample: S-TMW-1 Lab ID: 60478826001 Collected: 07/10/25 14:38 Received: 07/11/25 07:09 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>487</b>	mg/L	10.0	10.0	1		07/15/25 14:47		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>11.8</b>	mg/L	1.0	0.53	1		07/22/25 02:26	16887-00-6	M1

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Sample: S-TMW-2 Lab ID: 60478826002 Collected: 07/10/25 09:45 Received: 07/11/25 07:09 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>459</b>	mg/L	10.0	10.0	1		07/15/25 14:47		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>3.0</b>	mg/L	1.0	0.53	1		07/22/25 03:10	16887-00-6	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Sample: S-TMW-3 Lab ID: 60478826003 Collected: 07/10/25 11:25 Received: 07/11/25 07:09 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>483</b>	mg/L	10.0	10.0	1		07/15/25 14:47		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>17.1</b>	mg/L	1.0	0.53	1		07/22/25 03:21	16887-00-6	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Sample: S-SCL4A-DUP-1 Lab ID: 60478826004 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
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<b>479</b>	mg/L	10.0	10.0	1		07/15/25 14:47		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<b>15.8</b>	mg/L	1.0	0.53	1		07/20/25 00:05	16887-00-6	

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Sample: S-SCL4A-FB-1 Lab ID: 60478826005 Collected: 07/10/25 10:13 Received: 07/11/25 07:09 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		07/15/25 14:47		
<b>300.0 IC Anions 28 Days</b>	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	<0.53	mg/L	1.0	0.53	1		07/20/25 00:19	16887-00-6	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

QC Batch:	941730	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60478826001, 60478826002, 60478826003, 60478826004, 60478826005

METHOD BLANK: 3733377 Matrix: Water  
 Associated Lab Samples: 60478826001, 60478826002, 60478826003, 60478826004, 60478826005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/15/25 14:44	

LABORATORY CONTROL SAMPLE: 3733378

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

SAMPLE DUPLICATE: 3733379

Parameter	Units	60478805001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	550	553	1	10	

SAMPLE DUPLICATE: 3733380

Parameter	Units	60478820004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	792	784	1	10	

SAMPLE DUPLICATE: 3733381

Parameter	Units	60478826001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	487	493	1	10	

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

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

QC Batch: 942250

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60478826004, 60478826005

METHOD BLANK: 3735317

Matrix: Water

Associated Lab Samples: 60478826004, 60478826005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	07/19/25 16:14	

LABORATORY CONTROL SAMPLE: 3735318

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735329 3735330

Parameter	Units	60478879001		3735330		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	62.9	100	100	152	151	89	88	80-120	1	15

SAMPLE DUPLICATE: 3735331

Parameter	Units	60478879001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	62.9	60.2	4	15	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

QC Batch:	942433	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60478826001, 60478826002, 60478826003

METHOD BLANK: 3735893 Matrix: Water  
 Associated Lab Samples: 60478826001, 60478826002, 60478826003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	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	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735895 3735896

Parameter	Units	60478806001		3735895		3735896		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Chloride	mg/L	8.6	5	5	5	12.4	12.3	75	73	80-120	1	15	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735898 3735899

Parameter	Units	60478810001		3735898		3735899		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Chloride	mg/L	1.5	5	5	5	5.6	5.7	83	84	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3735904 3735905

Parameter	Units	60478826001		3735904		3735905		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Chloride	mg/L	11.8	5	5	5	15.5	15.5	74	73	80-120	0	15	M1

SAMPLE DUPLICATE: 3735897

Parameter	Units	60478806001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	8.6	8.6	0	15	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

SAMPLE DUPLICATE: 3735906

Parameter	Units	60478826001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	11.8	11.8	0	15	

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## QUALIFIERS

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

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### 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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCL4A-VERIFICATION

Pace Project No.: 60478826

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60478826001	S-TMW-1	SM 2540C	941730		
60478826002	S-TMW-2	SM 2540C	941730		
60478826003	S-TMW-3	SM 2540C	941730		
60478826004	S-SCL4A-DUP-1	SM 2540C	941730		
60478826005	S-SCL4A-FB-1	SM 2540C	941730		
60478826001	S-TMW-1	EPA 300.0	942433		
60478826002	S-TMW-2	EPA 300.0	942433		
60478826003	S-TMW-3	EPA 300.0	942433		
60478826004	S-SCL4A-DUP-1	EPA 300.0	942250		
60478826005	S-SCL4A-FB-1	EPA 300.0	942250		

### REPORT OF LABORATORY ANALYSIS

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WO#: 60478826



60478826



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 1.9 Corr. Factor 0.0 Corrected 1.9

Date and initials of person examining contents:

R 2/11/25

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: \_\_\_\_\_



Client: Rocksmith Geobeng

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																																
2																																	
3																																	
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

Container Codes

Glass		Plastic		Misc.	
DG9B	40mL bisulfate clear vial	BP1B	1L NaOH plastic	I	Wipe/Swab
DG9H	40mL HCl amber vial	BP1N	1L HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
DG9M	40mL MeOH clear vial	BP1S	1L H2SO4 plastic	ZPLC	Ziploc Bag
DG9Q	40mL TSP amber vial	BP1U	1L unreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	BP1Z	1L NaOH, Zn Acetate	C	Air Cassettes
DG9T	40mL Na Thio amber vial	BP2B	500mL NaOH plastic	R	Terracore Kit
DG9U	40mL amber unreserved	BP2N	500mL HNO3 plastic	U	Summa Can
VG9H	40mL HCl clear vial	BP2S	500mL H2SO4 plastic		
VG9T	40mL Na Thio. clear vial	BP2U	500mL unreserved plastic		
VG9U	40mL unreserved clear vial	BP2Z	500mL NaOH, Zn Acetate		
BG1S	1liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
BG1U	1liter unpres glass	BP3F	250mL HNO3 plastic - field filtered	WT	Water
BG3H	250mL HCL Clear glass	BP3N	250mL HNO3 plastic	SL	Solid
BG3U	250mL Unpres Clear glass	BP3U	250mL unreserved plastic	NAL	Non-aqueous Liquid
WGDU	16oz clear soil jar	BP3S	250mL H2SO4 plastic	OL	OIL
		BP3Z	250mL NaOH, Zn Acetate	WP	Wipe
		BP4U	125mL unreserved plastic	DW	Drinking Water
		BP4N	125mL HNO3 plastic		
		BP4S	125mL H2SO4 plastic		
		WPDU	16oz unreserved plastic		

Work Order Number:

60478826



# Memorandum

August 20, 2025

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**To:** Project File  
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 – SCL4A – Data Package 60478826**

---

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).

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering  
 Project Name: Ameren SCL4A- Verification  
 Reviewer: J. Rasmussen

Project Manager: J. Ingram  
 Project Number: 23009-25  
 Validation Date: 8/20/2025

Laboratory: Pace Analytical

SDG #: 60478826

Analytical Method (type and no.): SM 2540C (TDS); EPA 300.0 (Anions)

Matrix:  Air  Soil/Sed.  Water  Waste

Sample Names S-TMW-1, S-TMW-2, S-TMW-3, S-SCL4A-DUP-1, S-SCL4A-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7/10/2025</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>JTR/JDQ/CLJ</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Spec Cond, Turb, Temp, DO, ORP</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>No lab narrative.</u>

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
f) Were any sample dilutions noted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
g) Were any matrix problems noted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

<b>Blanks</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were analytes detected in the method blank(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Were analytes detected in the field blank(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-FB-1 @ S-TMW-2
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Laboratory Control Sample (LCS)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Duplicates</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-DUP-1 @ S-TMW-3
b) Were field dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All RPD's within control limits
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Blind Standards</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes

**Comments/Notes:**

MS/MSD:

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

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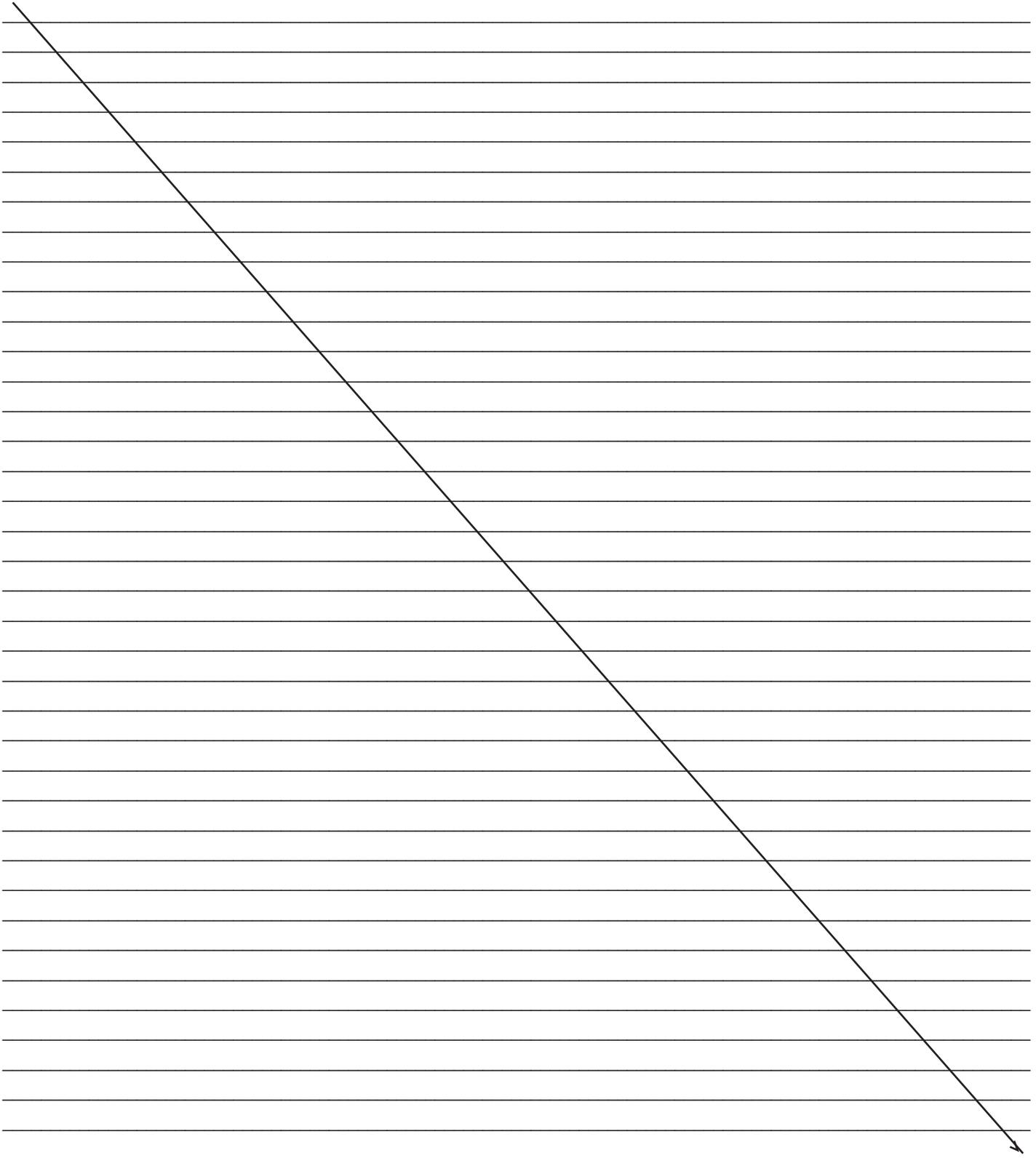
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# QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

## Comments/Notes:

MS/MSD:

3735904/3735905: MS and MSD recovery low for chloride, RPD within control limits. Associated with sample -001, result qualified as estimate.







November 12, 2025

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

RE: Project: AMEREN SCL4A  
Pace Project No.: 60483723

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between October 08, 2025 and October 10, 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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: AMEREN SCL4A

Pace Project No.: 60483723

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: AMEREN SCL4A

Pace Project No.: 60483723

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60483723001	S-TMW-2	Water	10/06/25 11:37	10/08/25 08:20
60483723002	S-TMW-3	Water	10/06/25 10:32	10/08/25 08:20
60483723003	S-SCL4A-DUP-1	Water	10/06/25 00:00	10/08/25 08:20
60483723004	S-SCL4A-FB-1	Water	10/06/25 10:50	10/08/25 08:20
60483723005	S-TMW-1	Water	10/08/25 15:02	10/10/25 07:30
60483592012	S-UG-3	Water	10/07/25 11:05	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 SCL4A

Pace Project No.: 60483723

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60483723001	S-TMW-2	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
60483723002	S-TMW-3	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
60483723003	S-SCL4A-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
60483723004	S-SCL4A-FB-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
60483723005	S-TMW-1	EPA 200.7	ARMN	7	PASI-K
		EPA 300.0	MLL	3	PASI-SA
		SM 2320B	AJWM	1	PASI-K
		SM 2540C	CAR	1	PASI-K
60483592012	S-UG-3	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 SCL4A

Pace Project No.: 60483723

Sample: S-TMW-2 Lab ID: 60483723001 Collected: 10/06/25 11:37 Received: 10/08/25 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	91.7J	ug/L	100	7.3	1	10/09/25 09:07	10/19/25 10:44	7440-42-8	
Calcium	127000	ug/L	200	12.1	1	10/09/25 09:07	10/19/25 10:44	7440-70-2	
Iron	1790	ug/L	50.0	8.7	1	10/09/25 09:07	10/19/25 10:44	7439-89-6	
Magnesium	23300	ug/L	50.0	16.0	1	10/09/25 09:07	10/19/25 10:44	7439-95-4	
Manganese	452	ug/L	5.0	0.52	1	10/09/25 09:07	10/19/25 10:44	7439-96-5	
Potassium	5340	ug/L	500	66.6	1	10/09/25 09:07	10/19/25 10:44	7440-09-7	
Sodium	4010	ug/L	500	46.9	1	10/09/25 09:07	10/19/25 10:44	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	5.7	mg/L	1.0	0.18	1		10/28/25 09:20	16887-00-6	
Fluoride	0.30	mg/L	0.10	0.040	1		10/28/25 09:20	16984-48-8	
Sulfate	25.4	mg/L	2.0	0.19	2		10/28/25 15:26	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	388	mg/L	20.0	10.5	1		10/20/25 15:57		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	444	mg/L	10.0	10.0	1		10/13/25 13:44		

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60483723

Sample: S-TMW-3 Lab ID: 60483723002 Collected: 10/06/25 10:32 Received: 10/08/25 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>96.0J</b>	ug/L	100	7.3	1	10/09/25 09:07	10/19/25 10:39	7440-42-8	
Calcium	<b>127000</b>	ug/L	200	12.1	1	10/09/25 09:07	10/19/25 10:39	7440-70-2	M1
Iron	<b>1110</b>	ug/L	50.0	8.7	1	10/09/25 09:07	10/19/25 10:39	7439-89-6	
Magnesium	<b>23100</b>	ug/L	50.0	16.0	1	10/09/25 09:07	10/19/25 10:39	7439-95-4	
Manganese	<b>601</b>	ug/L	5.0	0.52	1	10/09/25 09:07	10/19/25 10:39	7439-96-5	
Potassium	<b>6200</b>	ug/L	500	66.6	1	10/09/25 09:07	10/19/25 10:39	7440-09-7	
Sodium	<b>4850</b>	ug/L	500	46.9	1	10/09/25 09:07	10/19/25 10:39	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	<b>16.4</b>	mg/L	2.0	0.36	2		10/28/25 15:38	16887-00-6	
Fluoride	<b>0.30</b>	mg/L	0.10	0.040	1		10/28/25 09:32	16984-48-8	
Sulfate	<b>44.9</b>	mg/L	5.0	0.48	5		10/28/25 16:40	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>362</b>	mg/L	20.0	10.5	1		10/20/25 15:57		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>463</b>	mg/L	10.0	10.0	1		10/13/25 13:44		

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60483723

Sample: S-SCL4A-DUP-1 Lab ID: 60483723003 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
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	89.5J	ug/L	100	7.3	1	10/09/25 09:07	10/19/25 10:46	7440-42-8	
Calcium	121000	ug/L	200	12.1	1	10/09/25 09:07	10/19/25 10:46	7440-70-2	
Iron	1690	ug/L	50.0	8.7	1	10/09/25 09:07	10/19/25 10:46	7439-89-6	
Magnesium	22200	ug/L	50.0	16.0	1	10/09/25 09:07	10/19/25 10:46	7439-95-4	
Manganese	427	ug/L	5.0	0.52	1	10/09/25 09:07	10/19/25 10:46	7439-96-5	
Potassium	5120	ug/L	500	66.6	1	10/09/25 09:07	10/19/25 10:46	7440-09-7	
Sodium	3920	ug/L	500	46.9	1	10/09/25 09:07	10/19/25 10:46	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	6.0	mg/L	1.0	0.18	1		10/28/25 10:09	16887-00-6	
Fluoride	0.31	mg/L	0.10	0.040	1		10/28/25 10:09	16984-48-8	
Sulfate	25.3	mg/L	2.0	0.19	2		10/28/25 17:17	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	388	mg/L	20.0	10.5	1		10/20/25 15:59		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	442	mg/L	10.0	10.0	1		10/13/25 13:45		

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60483723

Sample: S-SCL4A-FB-1 Lab ID: 60483723004 Collected: 10/06/25 10:50 Received: 10/08/25 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		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 09:07	10/19/25 10:48	7440-42-8	
Calcium	14.2J	ug/L	200	12.1	1	10/09/25 09:07	10/19/25 10:48	7440-70-2	B
Iron	<8.7	ug/L	50.0	8.7	1	10/09/25 09:07	10/19/25 10:48	7439-89-6	
Magnesium	<16.0	ug/L	50.0	16.0	1	10/09/25 09:07	10/19/25 10:48	7439-95-4	
Manganese	<0.52	ug/L	5.0	0.52	1	10/09/25 09:07	10/19/25 10:48	7439-96-5	
Potassium	<66.6	ug/L	500	66.6	1	10/09/25 09:07	10/19/25 10:48	7440-09-7	
Sodium	<46.9	ug/L	500	46.9	1	10/09/25 09:07	10/19/25 10:48	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	<0.18	mg/L	1.0	0.18	1		10/28/25 10:21	16887-00-6	
Fluoride	<0.040	mg/L	0.10	0.040	1		10/28/25 10:21	16984-48-8	
Sulfate	<0.096	mg/L	1.0	0.096	1		10/28/25 10:21	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<10.5	mg/L	20.0	10.5	1		10/20/25 15:59		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		10/13/25 13:45		

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60483723

Sample: S-TMW-1 Lab ID: 60483723005 Collected: 10/08/25 15:02 Received: 10/10/25 07:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	81.5J	ug/L	100	33.2	1	10/15/25 09:48	10/16/25 17:12	7440-42-8	
Calcium	119000	ug/L	200	45.3	1	10/15/25 09:48	10/16/25 17:12	7440-70-2	
Iron	<15.4	ug/L	50.0	15.4	1	10/15/25 09:48	10/16/25 17:12	7439-89-6	
Magnesium	21100	ug/L	50.0	21.1	1	10/15/25 09:48	10/16/25 17:12	7439-95-4	
Manganese	323	ug/L	5.0	0.42	1	10/15/25 09:48	10/16/25 17:12	7439-96-5	
Potassium	5140	ug/L	500	45.2	1	10/15/25 09:48	10/16/25 17:12	7440-09-7	
Sodium	4070	ug/L	500	31.8	1	10/15/25 09:48	10/16/25 17:12	7440-23-5	B
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	6.6	mg/L	1.0	0.18	1		10/29/25 14:02	16887-00-6	
Fluoride	0.40	mg/L	0.10	0.040	1		10/29/25 14:02	16984-48-8	
Sulfate	63.9	mg/L	5.0	0.48	5		10/29/25 19:59	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	336	mg/L	20.0	10.5	1		10/22/25 18:50		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	461	mg/L	10.0	10.0	1		10/14/25 09:15		

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**ANALYTICAL RESULTS**

Project: AMEREN SCL4A

Pace Project No.: 60483723

**Sample: S-UG-3**      **Lab ID: 60483592012**      Collected: 10/07/25 11:05      Received: 10/08/25 08:20      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>340</b>	ug/L	100	33.2	1	10/08/25 15:11	10/17/25 15:34	7440-42-8	
Calcium	<b>123000</b>	ug/L	200	45.3	1	10/08/25 15:11	10/17/25 15:34	7440-70-2	
Iron	<b>&lt;15.4</b>	ug/L	50.0	15.4	1	10/08/25 15:11	10/17/25 15:34	7439-89-6	
Magnesium	<b>23800</b>	ug/L	50.0	21.1	1	10/08/25 15:11	10/17/25 15:34	7439-95-4	
Manganese	<b>612</b>	ug/L	5.0	0.42	1	10/08/25 15:11	10/17/25 15:34	7439-96-5	
Potassium	<b>4240</b>	ug/L	500	45.2	1	10/08/25 15:11	10/17/25 15:34	7440-09-7	
Sodium	<b>19600</b>	ug/L	500	31.8	1	10/08/25 15:11	10/17/25 15:34	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	<b>13.9</b>	mg/L	1.0	0.18	1		10/26/25 12:48	16887-00-6	
Fluoride	<b>0.28</b>	mg/L	0.10	0.040	1		10/26/25 12:48	16984-48-8	
Sulfate	<b>78.9</b>	mg/L	10.0	0.96	10		10/26/25 20:30	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>324</b>	mg/L	20.0	10.5	1		10/21/25 17:33		L1
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>500</b>	mg/L	10.0	10.0	1		10/13/25 16:33		

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**ANALYTICAL RESULTS**

Project: AMEREN SCL4A

Pace Project No.: 60483723

**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
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7    Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>68.5J</b>	ug/L	100	33.2	1	10/08/25 15:11	10/17/25 15:59	7440-42-8	
Calcium	<b>168000</b>	ug/L	200	45.3	1	10/08/25 15:11	10/17/25 15:59	7440-70-2	
Iron	<b>35.5J</b>	ug/L	50.0	15.4	1	10/08/25 15:11	10/17/25 15:59	7439-89-6	
Magnesium	<b>34000</b>	ug/L	50.0	21.1	1	10/08/25 15:11	10/17/25 15:59	7439-95-4	
Manganese	<b>825</b>	ug/L	5.0	0.42	1	10/08/25 15:11	10/17/25 15:59	7439-96-5	
Potassium	<b>516</b>	ug/L	500	45.2	1	10/08/25 15:11	10/17/25 15:59	7440-09-7	B
Sodium	<b>5400</b>	ug/L	500	31.8	1	10/08/25 15:11	10/17/25 15:59	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	<b>11.4</b>	mg/L	1.0	0.18	1		10/26/25 10:20	16887-00-6	
Fluoride	<b>0.27</b>	mg/L	0.10	0.040	1		10/26/25 10:20	16984-48-8	
Sulfate	<b>39.2</b>	mg/L	5.0	0.48	5		10/26/25 17:12	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>514</b>	mg/L	20.0	10.5	1		10/20/25 15:57		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>596</b>	mg/L	13.3	13.3	1		10/09/25 15:29		

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### ANALYTICAL RESULTS

Project: AMEREN SCL4A

Pace Project No.: 60483723

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
<b>200.7 Metals, Total</b>		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<b>62.1J</b>	ug/L	100	33.2	1	10/08/25 15:11	10/17/25 15:22	7440-42-8	
Calcium	<b>129000</b>	ug/L	200	45.3	1	10/08/25 15:11	10/17/25 15:22	7440-70-2	
Iron	<b>&lt;15.4</b>	ug/L	50.0	15.4	1	10/08/25 15:11	10/17/25 15:22	7439-89-6	
Magnesium	<b>22900</b>	ug/L	50.0	21.1	1	10/08/25 15:11	10/17/25 15:22	7439-95-4	
Manganese	<b>423</b>	ug/L	5.0	0.42	1	10/08/25 15:11	10/17/25 15:22	7439-96-5	
Potassium	<b>516</b>	ug/L	500	45.2	1	10/08/25 15:11	10/17/25 15:22	7440-09-7	B
Sodium	<b>6200</b>	ug/L	500	31.8	1	10/08/25 15:11	10/17/25 15:22	7440-23-5	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Pace Analytical Services - Salina							
Chloride	<b>9.6</b>	mg/L	1.0	0.18	1		10/26/25 10:32	16887-00-6	
Fluoride	<b>0.30</b>	mg/L	0.10	0.040	1		10/26/25 10:32	16984-48-8	
Sulfate	<b>35.6</b>	mg/L	2.0	0.19	2		10/26/25 17:25	14808-79-8	
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<b>380</b>	mg/L	20.0	10.5	1		10/20/25 15:57		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	<b>477</b>	mg/L	10.0	10.0	1		10/09/25 15:30		

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A  
Pace Project No.: 60483723

QC Batch: 950940 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Laboratory: Pace Analytical Services - Kansas City  
Associated Lab Samples: 60483592004, 60483592005, 60483592012

METHOD BLANK: 3768607 Matrix: Water  
Associated Lab Samples: 60483592004, 60483592005, 60483592012

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		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
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	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

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MATRIX SPIKE SAMPLE:	3768611	60483592009	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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 SCL4A

Pace Project No.: 60483723

QC Batch: 951033 Analysis Method: EPA 200.7  
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
 Laboratory: Pace Analytical Services - Kansas City  
 Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

METHOD BLANK: 3768949 Matrix: Water  
 Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<7.3	100	7.3	10/19/25 10:36	
Calcium	ug/L	26.8J	200	12.1	10/19/25 10:36	
Iron	ug/L	9.7J	50.0	8.7	10/19/25 10:36	
Magnesium	ug/L	23.0J	50.0	16.0	10/19/25 10:36	
Manganese	ug/L	<0.52	5.0	0.52	10/19/25 10:36	
Potassium	ug/L	<66.6	500	66.6	10/19/25 10:36	
Sodium	ug/L	<46.9	500	46.9	10/19/25 10:36	

LABORATORY CONTROL SAMPLE: 3768950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1010	101	85-115	
Calcium	ug/L	10000	10500	105	85-115	
Iron	ug/L	10000	11100	111	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1070	107	85-115	
Potassium	ug/L	10000	10400	104	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3768951 3768952

Parameter	Units	60483723002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
Boron	ug/L	96.0J	1000	1000	1110	1130	101	103	70-130	2	20		
Calcium	ug/L	127000	10000	10000	135000	140000	78	131	70-130	4	20	M1	
Iron	ug/L	1110	10000	10000	11800	12200	107	111	70-130	3	20		
Magnesium	ug/L	23100	10000	10000	32700	33900	96	108	70-130	3	20		
Manganese	ug/L	601	1000	1000	1620	1670	101	107	70-130	3	20		
Potassium	ug/L	6200	10000	10000	16700	16900	105	107	70-130	1	20		
Sodium	ug/L	4850	10000	10000	15300	15500	104	107	70-130	2	20		

MATRIX SPIKE SAMPLE: 3768953

Parameter	Units	60483702003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L		562	1000	1610	104	70-130
Calcium	ug/L		802000	10000	808000	54	70-130 M1

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

MATRIX SPIKE SAMPLE:		3768953					
Parameter	Units	60483702003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	1550	10000	12600	111	70-130	
Magnesium	ug/L	179000	10000	188000	89	70-130	
Manganese	ug/L	2170	1000	3170	101	70-130	
Potassium	ug/L	77300	10000	89700	124	70-130	
Sodium	ug/L	4050000	10000	4080000	349	70-130	M1

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch:	951640	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60483723005

METHOD BLANK: 3771453 Matrix: Water

Associated Lab Samples: 60483723005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<33.2	100	33.2	10/16/25 16:37	
Calcium	ug/L	<45.3	200	45.3	10/16/25 16:37	
Iron	ug/L	<15.4	50.0	15.4	10/16/25 16:37	
Magnesium	ug/L	<21.1	50.0	21.1	10/16/25 16:37	
Manganese	ug/L	<0.42	5.0	0.42	10/16/25 16:37	
Potassium	ug/L	<45.2	500	45.2	10/16/25 16:37	
Sodium	ug/L	410J	500	31.8	10/16/25 16:37	

LABORATORY CONTROL SAMPLE: 3771454

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	948	95	85-115	
Calcium	ug/L	10000	9910	99	85-115	
Iron	ug/L	10000	9920	99	85-115	
Magnesium	ug/L	10000	9580	96	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9850	98	85-115	
Sodium	ug/L	10000	10000	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3771455 3771456

Parameter	Units	60483727006		3771456		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Boron	ug/L	6420	1000	1000	7310	7350	89	92	70-130	0	20
Calcium	ug/L	301000	10000	10000	305000	308000	42	64	70-130	1	20 M1
Iron	ug/L	<15.4	10000	10000	9790	9980	98	100	70-130	2	20
Magnesium	ug/L	67000	10000	10000	75400	76000	84	90	70-130	1	20
Manganese	ug/L	1120	1000	1000	2080	2060	96	94	70-130	1	20
Potassium	ug/L	5270	10000	10000	15200	15200	99	99	70-130	0	20
Sodium	ug/L	72100	10000	10000	80500	80700	84	86	70-130	0	20

MATRIX SPIKE SAMPLE: 3771457

Parameter	Units	60483728007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L		103	1000	1020	92	70-130
Calcium	ug/L		169000	10000	174000	47	70-130 M1

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

MATRIX SPIKE SAMPLE:		3771457					
Parameter	Units	60483728007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	<15.4	10000	9620	96	70-130	
Magnesium	ug/L	43500	10000	51700	81	70-130	
Manganese	ug/L	330	1000	1260	93	70-130	
Potassium	ug/L	6010	10000	15400	94	70-130	
Sodium	ug/L	9730	10000	18700	90	70-130	

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch:	952778	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Salina

Associated Lab Samples: 60483592004, 60483592005, 60483592012

METHOD BLANK: 3776285 Matrix: Water  
 Associated Lab Samples: 60483592004, 60483592005, 60483592012

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		3776287		3776288		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
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		3776289		3776290		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
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 SCL4A

Pace Project No.: 60483723

QC Batch:	953128	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Salina

Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

METHOD BLANK: 3777712 Matrix: Water  
 Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

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		3777714		3777715		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
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		3777716		3777717		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
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 SCL4A

Pace Project No.: 60483723

QC Batch: 953362

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Salina

Associated Lab Samples: 60483723005

METHOD BLANK: 3778553

Matrix: Water

Associated Lab Samples: 60483723005

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		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
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		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
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 SCL4A

Pace Project No.: 60483723

QC Batch: 952195

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60483592004, 60483592005, 60483723001, 60483723002, 60483723003, 60483723004

METHOD BLANK: 3773924

Matrix: Water

Associated Lab Samples: 60483592004, 60483592005, 60483723001, 60483723002, 60483723003, 60483723004

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 SCL4A

Pace Project No.: 60483723

QC Batch: 952197

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60483592012

METHOD BLANK: 3773930

Matrix: Water

Associated Lab Samples: 60483592012

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 SCL4A

Pace Project No.: 60483723

QC Batch: 952566

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60483723005

METHOD BLANK: 3775336

Matrix: Water

Associated Lab Samples: 60483723005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	10/22/25 18:50	

LABORATORY CONTROL SAMPLE: 3775337

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

SAMPLE DUPLICATE: 3775338

Parameter	Units	60483723005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	336	338	1	10	

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch: 951058

Analysis Method: SM 2540C

QC Batch 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	

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

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch:	951335	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

METHOD BLANK: 3770459 Matrix: Water  
 Associated Lab Samples: 60483723001, 60483723002, 60483723003, 60483723004

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	

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

**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch: 951336

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60483592012

METHOD BLANK: 3770463

Matrix: Water

Associated Lab Samples: 60483592012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/13/25 16:32	

LABORATORY CONTROL SAMPLE: 3770464

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

SAMPLE DUPLICATE: 3770465

Parameter	Units	60483592010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	756	759	0	10	

SAMPLE DUPLICATE: 3770466

Parameter	Units	60483755001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6880	7050	3	10	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: AMEREN SCL4A

Pace Project No.: 60483723

QC Batch: 951460

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60483723005

METHOD BLANK: 3770737

Matrix: Water

Associated Lab Samples: 60483723005

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	

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 SCL4A

Pace Project No.: 60483723

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### 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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCL4A

Pace Project No.: 60483723

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
60483592012	S-UG-3	EPA 200.7	950940	EPA 200.7	950995
60483723001	S-TMW-2	EPA 200.7	951033	EPA 200.7	951046
60483723002	S-TMW-3	EPA 200.7	951033	EPA 200.7	951046
60483723003	S-SCL4A-DUP-1	EPA 200.7	951033	EPA 200.7	951046
60483723004	S-SCL4A-FB-1	EPA 200.7	951033	EPA 200.7	951046
60483723005	S-TMW-1	EPA 200.7	951640	EPA 200.7	951666
60483592004	S-BMW-1S	EPA 300.0	952778		
60483592005	S-BMW-3S	EPA 300.0	952778		
60483592012	S-UG-3	EPA 300.0	952778		
60483723001	S-TMW-2	EPA 300.0	953128		
60483723002	S-TMW-3	EPA 300.0	953128		
60483723003	S-SCL4A-DUP-1	EPA 300.0	953128		
60483723004	S-SCL4A-FB-1	EPA 300.0	953128		
60483723005	S-TMW-1	EPA 300.0	953362		
60483592004	S-BMW-1S	SM 2320B	952195		
60483592005	S-BMW-3S	SM 2320B	952195		
60483592012	S-UG-3	SM 2320B	952197		
60483723001	S-TMW-2	SM 2320B	952195		
60483723002	S-TMW-3	SM 2320B	952195		
60483723003	S-SCL4A-DUP-1	SM 2320B	952195		
60483723004	S-SCL4A-FB-1	SM 2320B	952195		
60483723005	S-TMW-1	SM 2320B	952566		
60483592004	S-BMW-1S	SM 2540C	951058		
60483592005	S-BMW-3S	SM 2540C	951058		
60483592012	S-UG-3	SM 2540C	951336		
60483723001	S-TMW-2	SM 2540C	951335		
60483723002	S-TMW-3	SM 2540C	951335		
60483723003	S-SCL4A-DUP-1	SM 2540C	951335		
60483723004	S-SCL4A-FB-1	SM 2540C	951335		
60483723005	S-TMW-1	SM 2540C	951460		

### REPORT OF LABORATORY ANALYSIS

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WO#: 60483723



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

Client Name: Recksmith 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  Nope  Other

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

Cooler Temperature (°C): As-read 1.1/1.3/1.3 Corr. Factor 0.0 Corrected 1.1/1.3/1.3

Date and initials of person examining contents:  
12/10/8/25

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>Extra sample not</u>
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>mark on COC.</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>S-SCLYA-FB-1 10/6/25 10:50</u>
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, Radium) LOT#: <u>96888</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials ( >6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: \_\_\_\_\_

**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



60183723

Company Name: Rocksmith Geoen지니어링, LLC.  
Street Address: 2320 Creve Coeur Mill Road  
Maryland Heights, MO 63043

Contact/Report To: Mark Haddock  
Phone #: 314-974-6578  
E-Mail: mark.haddock@rocksmithgeo.com  
Cc E-Mail:

Customer Project #: AMEREN SCL4A

Invoice To: Mark Haddock  
Invoice E-Mail: mark.haddock@rocksmithgeo.com  
Purchase Order # (if applicable):  
Quote #:

County / State origin of sample(s): Missouri

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

Time Zone Collected:  AK  PT  MT  CT  ET

Data Deliverables:  
 Level II  Level III  Level IV  
 EQUIS  
 Other

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

Date Results Requested:  
Field Filtered (if applicable):  Yes  No

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

DW PWSID # or WW Permit # as applicable:  
Analysis:

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

Customer Sample ID	Matrix *	Composite Start		Collected or Composite End		# Cont.	Res. Chlorine Results	Units
		Date	Time	Date	Time			
S-TMW-1	WT							
S-TMW-2	WT			10/6/25	1137	2		
S-TMW-3	WT			10/6/25	1032	2		
S-SCL4A-DUP-1	WT			10/6/25	---	2		
S-SCL4A-FB-1	WT							
S-SCL4A-MS-1	WT			10/6/25	1032	2		
S-SCL4A-MSD-1	WT			10/6/25	1032	2		
S-UG-3	WT			10/17/25	1105	4		

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

Collected By: John Rasmussen  
Signature: *John Rasmussen*

Relinquished by/Company (Signature): *John Rasmussen*  
Date/Time: 10/17/25 1540

Received by/Company (Signature): *John Rasmussen*  
Date/Time: 10/17/25 0820

Relinquished by/Company (Signature):  
Date/Time:

Relinquished by/Company (Signature):  
Date/Time:

Relinquished by/Company (Signature):  
Date/Time:

Relinquished by/Company (Signature):  
Date/Time:

Customer Remarks / Special Conditions / Possible Hazards:

# Copiers: 3  
Thermometer ID: T-301  
Correction Factor (°C): 0.0  
Obs. Temp. (°F): 11/13/19  
Corrected Temp. (°C): 1.1/13/19  
Tracking Number: 0820  
On Ice: 1.1/13/19

Delivered by:  In-Person  Courier  
 FedEx  UPS  Other

Page: 32 of 37

Proj. Mgr:	AccntNum / Client ID:	Table #:	Profile / Template:	Prelog / Bottle Ord. ID:	Sample Comment
Jamie Church			15856	EZ 3303604	MS/MSO here
					taken @ TMW-3

Preservation non-conformance identified for

App III and Cat/An Metals

C/F/SO4/TDS/Alkalinity

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



**CHAIN-OF-CUSTODY Analytical Request Document**  
 Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company Name: Rocksmith Geoenvironment, LLC.  
 Street Address: 2320 Creve Coeur Mill Road  
 Maryland Heights, MO 63043

Contact/Report To: Mark Haddock  
 Phone #: 314-974-6578  
 E-Mail: mark.haddock@rocksmithgeo.com  
 CC E-Mail:

Customer Project #: AMEREN SCL4A

Invoice To: Mark Haddock  
 Invoice E-Mail: mark.haddock@rocksmithgeo.com  
 Purchase Order # (if applicable):  
 Quote #:

Site Collection Info/Facility ID (as applicable):

Country / State origin of sample(s): Missouri

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET

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

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

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

Field Filtered (if applicable): [ ] Yes [ ] No  
 Analysis: [ ] DW PWSID # or WW Permit # as applicable:

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DWM), Ground Water (GWW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OI), Wipe (WP), Tissue (TS), Biossary (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (L), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start		Collected or Composite End		# Cont.	Res. Chlorine Units
			Date	Time	Date	Time		
S-TMW-1	WT	G						
S-TMW-2	WT	G						
S-TMW-3	WT	G						
S-SCL4A-DUP-1	WT	G						
S-SCL4A-FB-1	WT	G						
S-SCL4A-MS-1	WT	G						
S-SCL4A-MSD-1	WT	G						
S-UG-3	WT	G						

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

Collected By: John Kaszura  
 (Printed Name)  
 Signature:

Requested by/Company (Signature)	Date/Time	Received by/Company (Signature)	Date/Time
<i>John Kaszura</i>	10/17/25 15:40	<i>John Kaszura</i>	
<i>John Kaszura</i>		<i>John Kaszura</i>	
<i>John Kaszura</i>		<i>John Kaszura</i>	



LAB USE ONLY - Affix Workorder/Login Label Here  
 Scan QR Code for instructions

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

App III and Cat/An Metals*	✓
Cl/F/ISO4/TDS/Alkalinity	✓
Customer Remarks / Special Conditions / Possible Hazards:	

Thermometer ID: T-301	Correction Factor (C): 0.0	Obs. Temp. (°F): 1.1/3/1.2	Corrected Temp. (°C): 1.1/3/1.3
Date/Time: 10/16/25	Date/Time: 0820	Tracking Number:	

Delivered by: [ ] In-Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other	Page: 1 of 1
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WO#: 60483723



DC#\_Title: ENV-FRM-LENE-0009\_Sample Co

Revision: 3

Effective Date: 09/22/2025

Issued By: Lenexa

Client Name: Rocks with Geology

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-301 Type of Ice: Wet Blue  None

Cooler Temperature (°C): As-read 2-0 Corr. Factor 0.0 Corrected 2-0

Date and initials of person examining contents:

PV 10/10/25

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, Radium) LOT#: <u>96888</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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) <input type="checkbox"/> Yes <input type="checkbox"/> No Potassium iodide test strip turns blue/purple? (Preserve) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials ( >6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: \_\_\_\_\_







# Memorandum

November 17, 2025

---

**To:** Project File  
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 – SCL4A – Data Package 60483723**

---

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).

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering  
 Project Name: Ameren SCL4A  
 Reviewer: J. Rasmussen

Project Manager: J. Ingram  
 Project Number: 23009-25  
 Validation Date: 11/17/2025

Laboratory: Pace Analytical SDG #: 60483723  
 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-1, S-TMW-2, S-TMW-3, S-SCL4A-DUP-1, S-SCL4A-FB-1, S-UG-3, 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10/06/2025 - 10/08/2025</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>JTR, JDQ, LES</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Spec Cond, Turb, Temp, DO, ORP</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>No lab narrative.</u>
Note Deficiencies: <u></u>				

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Were any matrix problems noted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>

## QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

<b>Blanks</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes, S-SCL4A-FB-1 @ S-TMW-2
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Laboratory Control Sample (LCS)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Duplicates</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCL4A-DUP-1 @ S-TMW-2
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were field dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

<b>Blind Standards</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes

**Comments/Notes:**

General:

Chloride and/or sulfate diluted in some samples, no qualification necessary.

## QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

### Comments/Notes:

#### Method blanks:

3768607: Potassium (60.5 J) associated with samples -004, -005 and -012. Samples -004 and -005 results > RL and < 10x blank, results qualified as estimates. Sample -012 result > RL and 10x blank, no qualification necessary.

3768949: Calcium (26.8 J), Iron (9.7 J), Magnesium (23.0 J) associated with samples -723001 through -004. Samples -723001 through -003 results > RL and 10x blank, no qualification necessary. Sample -723004 iron and magnesium results are non-detect, no qualification necessary. Calcium result < RL, result qualified as non-detect at RL.

3771453: Sodium (410 J) associated with sample -723005. Result > RL and < 10x blank, result qualified as estimate.

#### Field blank:

S-SCL4A-FB-1 @ S-TMW-3: Calcium (14.2 J) result > RL and 10x blank, no qualification necessary.

#### Duplicates:

S-SCL4A-DUP-1 @ S-TMW-2: Field duplicate RPD precision criteria met.

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

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

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

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

#### MS/MSD:

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

3768951/3768952: MSD recovery high calcium, MS and RPD within limits, no qualification necessary.

3768953: MS recovery low for calcium and MS recovery high for sodium, associated with unrelated sample.

3771455/3771456: MS and MSD recovery low for calcium, RPD okay. Associated with unrelated sample.

3771457: MS recovery low for calcium, associated with unrelated sample.

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



# Appendix B

## Alternative Source Demonstration – November 2024 Sampling Event

REPORT

# SCL4A – 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 Road  
Maryland Heights, MO 63043



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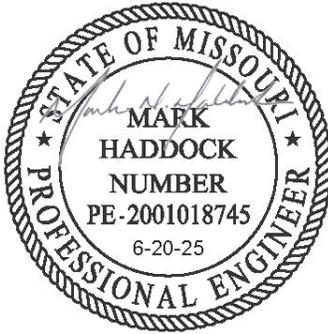
## 1.0 CERTIFICATION STATEMENT

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This SCL4A – *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 SCL4A – *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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Mark Haddock, P.E., R.G.

Principal Engineer, Senior Partner

## 2.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCL4A – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for Statistically Significant Increases (SSIs) identified for Ameren Missouri’s (Ameren) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) Cell 4A, referred to as the SCL4A. 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 the 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.

## 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 the SCL4A. The SEC is approximately 1,100 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 SCL4A 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, which can range from approximately 100 to 130 feet in thickness, make up 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 silts and clays. 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 Cell 4A – SCL4A

UWL Cell 4A is referred to by Ameren as the SCL4A, or “Landfill Cell 4A.” The SCL4A is approximately 15 acres in size and is located south of the generating plant on the south side of Highway 94 (**Figure 1**). The CCR Unit manages CCR from the SEC including “fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels” (Gredell and Reitz & Jens, 2014). These wastes are managed using a dry disposal process and are moisture conditioned (30-40% moisture content) to minimize dust and facilitate disposal. The CCR waste is trucked across Highway 94 from the plant and disposed in the SCL4A.

The SCL4A was constructed with a 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 high density polyethylene (HDPE) geomembrane liner. Information on the design of the UWL is available in the 2014 Proposed Construction Permit Modification, Construction Permit Number 0918301 (Gredell and Reitz & Jens, 2014).

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 seasonal low elevation for groundwater. Quarterly groundwater samples have been collected at UG-3 since June 2008 for the analysis of state required UWL



parameters, and TMW-1, TMW-2, and TMW-3 have been sampled since May 2016 for CCR Rule sampling events.

The permit for the SEC UWL was issued July 30, 2010 (permit #0918301) for the SCPC (Cell 1). Nine sampling events were performed prior to July 30, 2010, and represent groundwater quality prior to CCR placement in the SCPC. The SCL4A was the second cell that was constructed at this UWL. The SCL4A construction was not completed until 2014 and no CCR was placed in the unit until after the final revisions to the Proposed Construction Permit Modification on August 16, 2014. The results from these pre-disposal monitoring events are used, in conjunction with other site information, in the ASD presented below.

### 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, the following were completed prior to the October 17, 2017 deadline; (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) the required eight baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of the CCR Rule.

The groundwater monitoring system for the SCL4A consists of six monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on **Figure 1**. One existing monitoring well (UG-3) was installed by Gredell Engineering Resources, Inc., in December 2007 as a part of the state UWL monitoring program. The remaining monitoring wells (TMW-1, TMW-2, TMW-3, BMW-1S, and BMW-3S) were installed by Golder Associates Inc. (Golder) in 2015 and 2016 for CCR Rule groundwater monitoring purposes. More information on the design and installation of the monitoring wells is provided in the SCL4A GMP and the SCL4A 2017 Annual Report.

Between May 2016 and June 2017, eight baseline sampling events were completed for the SCL4A. After baseline sampling, the first Detection Monitoring event was completed in November 2017 and Detection Monitoring has continued on a semi-annual basis thereafter. Laboratory testing was performed for the following Appendix III constituents during Detection Monitoring:

- Boron
- Calcium
- Chloride
- pH
- Sulfate
- Total dissolved solids (TDS)
- Fluoride

In January 2018, background results from the eight baseline sampling events were used to calculate statistical upper prediction limits (UPLs). These UPLs were then compared to the Detection Monitoring results from the November 2017 samples and subsequent semi-annual Detection Monitoring sampling events. If a result was higher than the calculated UPL for a given constituent, this was considered an initial exceedance, and a verification sample was then collected and tested in accordance with the SCL4A Statistical Analysis Plan (SAP). In March 2024, the background dataset used to calculate statistical limits was expanded to include a total number of background observations to at least 20 per constituent per well. The following provides a summary of the Detection Monitoring results to date.

Since November 2017, several ASDs have been prepared for SSIs at wells UG-3, TMW-1, TMW-2, and TMW-3. These previous ASDs are available in the 2018 through 2024 Annual Reports for the SCL4A and are available on Ameren's publicly available CCR Compliance website (<https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports>). These ASDs have demonstrated that previous SSIs at the site were not caused by the SCL4A, but rather primarily the result of relatively low calculated UPLs that were not representative of the natural geochemical variability within the alluvial aquifer or primarily caused by the SCL4A being downgradient from the SCPA, which is currently in Corrective Action.

In November 2024, initial exceedances were identified for fluoride at UG-3, sulfate and TDS at TMW-1, calcium and chloride at TMW-2, and chloride at TMW-3. Verification sampling results from February 2025 confirmed SSIs of TDS at TMW-1, chloride at TMW-2, and chloride at TMW-3. Results from this sampling event are provided in **Table 1**.

## 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

The November 2024 SSIs occurred at monitoring wells TMW-1, TMW-2, and TMW-3. These wells 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-1, TMW-2, and TMW-3 are located south of the SCL4A and Highway 94, 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 at the SCL4A contained low-level pre-existing impacts from CCR that pre-date SCL4A operation. As a result of these pre-existing impacts, the SCL4A 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.

**Table 2** below provides a summary of the historical UPLs at TMW-1, TMW-2, and TMW-3, and the background wells (BMW-1S and BMW-3S) as well as the range of results and most recent sampling results.

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

Constituent	Well ID	UPL Based on Baseline Events	August 2019 Updated UPL	June 2021 Updated UPL	Current UPL (March 2024 Update)	Baseline Sampling Event Range	Detection Monitoring Sampling Range (November 2017 – May 2024)	November 2024 Result	February 2025 Result
Chloride (mg/L)	TMW-2	4.151	3.954	4.641	4.531	2.4 – 3.9	1.8 – 9.1	5.8	4.8
Chloride (mg/L)	TMW-3	3.1	3.1	3.1	3.383	1.6 – 3.1	1.6 – 19.1	18.7	17.7
Total Dissolved Solids (mg/L)	TMW-1	506.2	485.1	462.8	452.6	339 – 483	323 – 465	460	559
Chloride (mg/L)	Background Wells (BMW-1S & BMW-3S)	12.34	12.32	13.12	13.65	1.9 – 16.8	6.3 – 13.4	14.2 & 13.1	NS
Total Dissolved Solids (mg/L)	Background Wells (BMW-1S & BMW-3S)	565	565	579	608.2	409 - 565	398 – 1,170	613 & 413	NS

Notes:

- 1) mg/L – milligrams per liter.
- 2) UPL – upper prediction limit.
- 3) UPLs calculated using Sanitas™ software.
- 4) UWL – Utility Waste Landfill.
- 5) J – result is an estimated value.
- 6) NS – Not Sampled.
- 7) The UPLs for the background wells listed are used for the SCPB detection monitoring network. Current UPLs for these wells were most recently updated in September 2023.

## 5.0 EVIDENCE OF SSI FROM ALTERNATIVE SOURCE

Several different lines of evidence indicate that the SSIs at the SCL4A are not caused by impacts from the SCL4A, but rather from an alternative source. The following section describes the different lines of evidence, listed below, that demonstrate this position.

- A lack of elevated boron concentrations that would be expected with impacts from the SCL4A.
- Wells with SSIs contain chloride and TDS concentrations similar to concentrations measured at nearby and background monitoring wells.
- Chloride concentrations in the Missouri and Mississippi Rivers adjacent to the SEC exceed concentrations at TMW-2 and TMW-3.
- Geochemical signatures of groundwater, CCR Unit porewater, and leachate indicate SCL4A monitoring well samples are similar to unaffected background groundwater, and do not reflect impacts from leachate managed at adjacent CCR Units.
- Use of road salt (NaCl) nearby.
- Documentation of construction of the SCL4A with a composite liner system including a 60-mil HDPE geomembrane liner and a 2-foot thick compacted clay layer.

### 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)
<b>Fly Ash</b>	Fine grained, powdery material composed mostly of silica made from the burning of finely ground coal in the boiler.	<ul style="list-style-type: none"> <li>■ Boron</li> <li>■ Molybdenum</li> <li>■ Lithium</li> <li>■ Sulfate</li> </ul>
<b>Boiler Slag / Bottom Ash</b>	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.	<ul style="list-style-type: none"> <li>■ Bromide</li> <li>■ Potassium</li> <li>■ Sodium</li> <li>■ Fluoride</li> </ul>
<b>Flue Gas Desulfurization (FGD) Material</b>	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.	<ul style="list-style-type: none"> <li>■ Sulfate</li> <li>■ Fluoride</li> <li>■ Calcium</li> <li>■ Boron</li> <li>■ Bromide</li> <li>■ Chloride</li> </ul>

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.

Historically, the SCL4A has predominately received fly ash, but minor amounts of other CCR materials are also managed at the unit. FGD type wastes at the SEC are primarily managed at the SCPC (closed) and SCPD, located to the west of the SCL4A.

## 5.2 Evaluation of SSIs

### 5.2.1 Boron Concentrations

Boron is typically the key indicator for fly ash and boiler slag/bottom ash impacts because it is typically present in the leachate from these types of waste, is not a common anthropogenic contaminant, and is non-reactive and mobile in most hydrogeological environments (EPRI 2012). The non-reactive and mobile nature makes boron an early indicator of impacts from a CCR Unit. If groundwater was impacted by the SCL4A, current boron concentrations should be statistically elevated with respect to pre-CCR placement baseline results as well as background monitoring results.

**Figure 2** displays historical boron concentrations at TMW-1, TMW-2, and TMW-3 as well as background wells BMW-1S and BMW-3S. If the SSIs at these monitoring wells were caused by impacts from the SCL4A, boron concentrations would increase as a first indicator of CCR influence on the groundwater. **Figure 2** demonstrates that current boron concentrations are nearly identical to those from previous sampling events and background levels. Stable boron concentrations over time at TMW-1, TMW-2, and TMW-3 indicate that a source other than CCR is likely the cause of the SSIs.

### 5.2.2 Chloride Concentrations

Chloride is not known to be a key indicator of fly ash or boiler slag/bottom ash (EPRI 2012) but can be an indicator for FGD type waste and is commonly found in shallow groundwater systems near salt and brine treated roadways. At the SEC, FGD waste is primarily managed in the SCPC (closed) and SCPD, located west of the SCL4A (see **Figure 1**). The nearest public roadways to TMW-2 and TMW-3 are Highway 94 approximately 1,400 feet to the north, and Dwiggin Road approximately 1,100 feet to the south. Additionally, there is a CCR haul road directly north of the SCL4A, and there were temporary equipment haul roads constructed in 2023 to the east and south of the SCL4A associated with the construction of the SCPD.

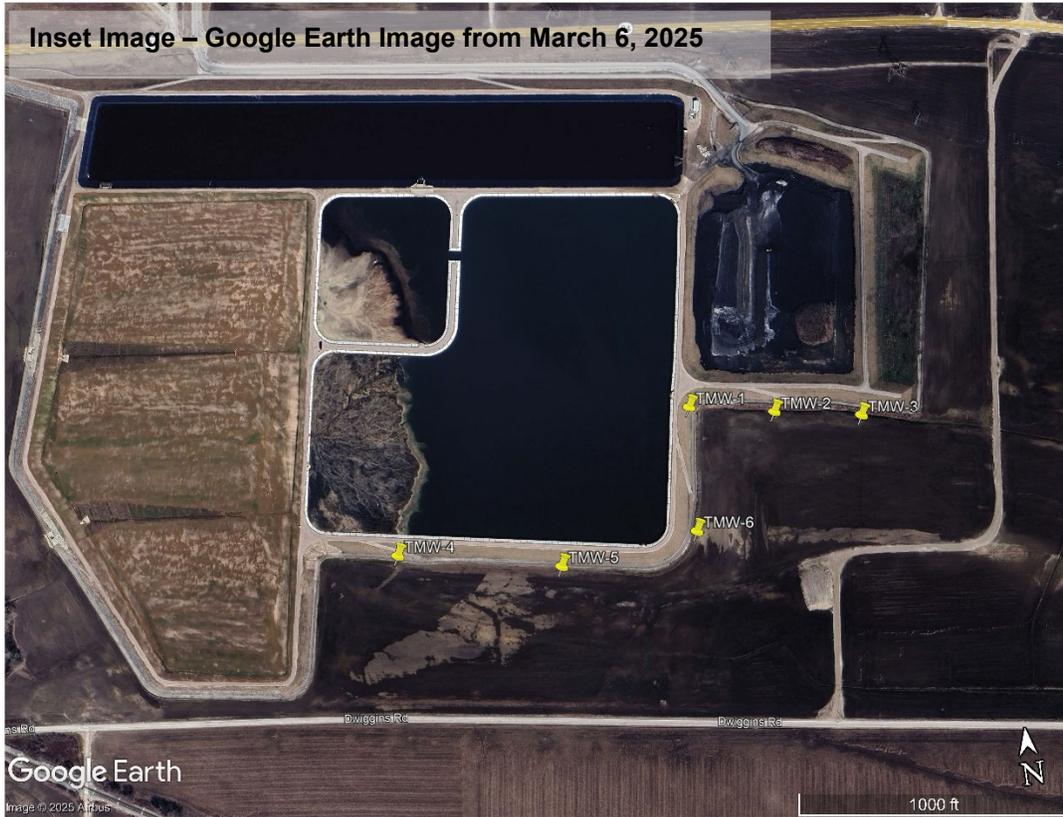
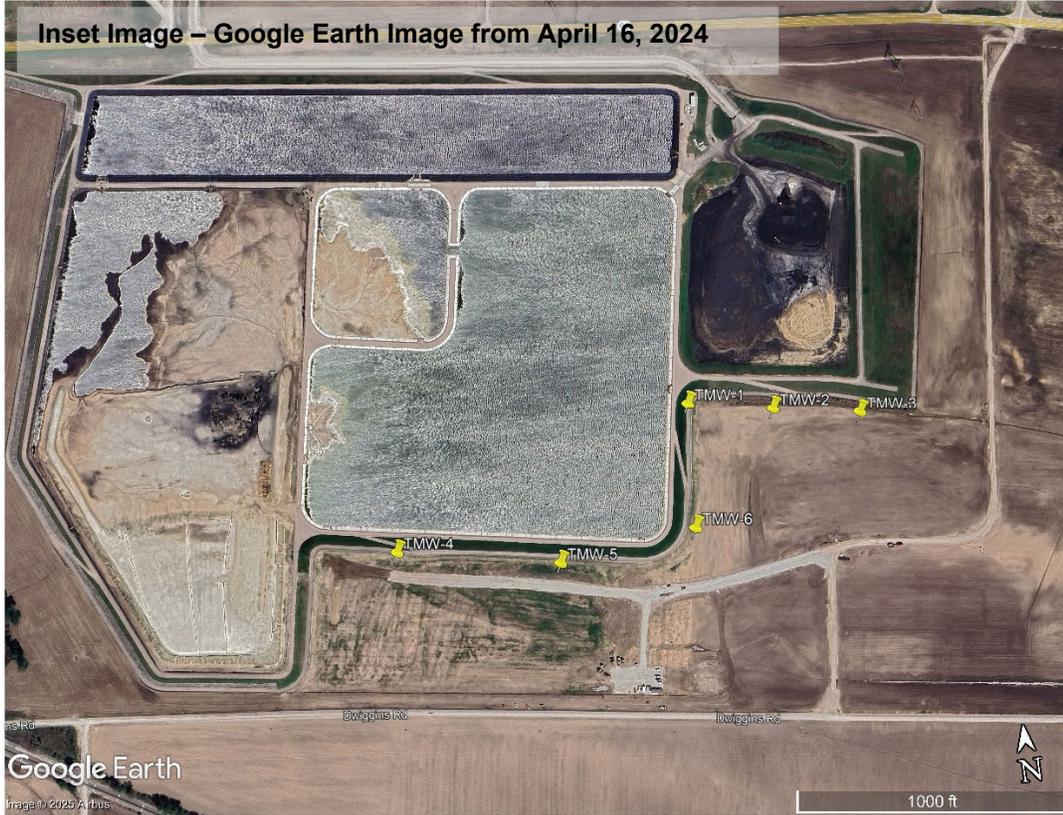
As displayed in **Table 2**, chloride concentrations from the November 2024 sampling event at TMW-2 and TMW-3 were 5.8 and 18.7 mg/L, respectively. Chloride concentrations of 4.8 and 17.7 mg/L were measured at TMW-2 and TMW-3 during the February 2025 sampling event. These values exceed the original calculated chloride UPLs of 4.531 and 3.383 mg/L at TMW-2 and TMW-3, which were calculated based on eight baseline sampling events in 2016 and 2017. There have been subsequent updates to the UPLs since the initial baseline limits, and most recently, UPLs were updated in March 2024. Current UPLs for chloride are 4.531 mg/L at TMW-2 and 3.383 mg/L at TMW-3.

Prior to the November 2024 sampling event, chloride concentrations in shallow alluvial background monitoring wells located approximately 1 mile to the northwest of the SCL4A (BMW-1S and BMW-3S) have ranged from 6.3 to 13.4 mg/L since their installation in 2016, with outliers of 1.9 and 16.8 mg/L at BMW-1S. Based on baseline sampling, the initial UPL for chloride was 12.34 mg/L at these shallow background wells. The UPL as of the latest background updates (completed September 2023) is 13.65 mg/L, which is the limit currently used for the SCPB detection monitoring network. **Figure 3** displays chloride results at the monitoring wells with chloride SSIs (TMW-2 and TMW-3) compared to results from site background wells BMW-1S and BMW-3S. This figure displays that recent chloride concentrations at TMW-3 slightly exceed shallow background concentrations. However, chloride results at TMW-2 continue to remain below shallow background concentrations. Chloride concentrations across each of the wells shown display a degree of natural variability.

As discussed in Section 5.1, chloride may be a good indicator of FGD waste impacts to groundwater but primarily when concentrations at monitoring wells are significantly greater than other water sources at the site. As discussed in previous Annual Reports for the SCL4A, groundwater flow across the SEC is largely controlled by the respective elevations of the Mississippi and Missouri Rivers to the north and south of the site. 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. Surface water testing of Mississippi and Missouri Rivers completed in 2017 and 2018 immediately to the north and south of the SEC revealed chloride concentrations ranging from 22.2 mg/L to 41.0 mg/L. Thus, at concentrations below these, as is the case for chloride at TMW-2 and TMW-3, the usefulness of chloride as an FGD waste impact indicator is diminished.

Additionally, in recent years, there have been significant disturbances to the surface conditions around the SCL4A monitoring wells. The inset images below display the changing surface conditions in recent years near these monitoring wells. Gravel haul roads and a parking lot were built to the south of the SCL4A in 2022 as part of construction activities for the adjacent SCPD (shown in the 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 the SCPD (shown in the inset aerial image taken 4/16/2024). Following construction activities, the temporary gravel roads and parking lot were removed; however, a permanent gravel road now exists inside the perimeter fence surrounding the SCPD at the toe of the berm (shown in the inset aerial image taken 3/6/2025). The casing of monitoring well TMW-1 was also lengthened in 2023 to accommodate the change in ground surface elevation from berm construction. Overall, since 2022, surface conditions around the SCL4A monitoring wells 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.





Road salt (composed primarily of sodium chloride) was applied to these construction roads and roads leading to the site for ice control. The application of road salt is a common alternative source for elevated chloride concentrations near highways and roads that are treated with salt during the winter. To further investigate the geochemical variability of chloride in the UWL area, 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 materials in the SCPC, beginning in May 2010. Each of these DG-xx monitoring wells are screened at approximately the same depth as TMW-2 and TMW-3 in the shallow zone of the alluvial aquifer. **Figure 4** displays a box and whisker plot of chloride concentrations for the DG-xx wells prior to the receipt of FGD materials in any CCR unit south of Highway 94. Recent chloride results at TMW-2 and TMW-3 are well within and below the historical ranges of many of DG-xx wells, the closest of which is approximately 1,100 feet to the south. This figure shows notable variability in local groundwater chemistry that pre-dates CCR placement in the area. Wells DG-4 through DG-8 are located only 50 feet south of Dwiggin Road, which receives salt treatment for ice control. These wells display significant variability in chloride concentrations, with average concentrations greater than recent results at TMW-2 and TMW-3. These data highlight the impact of road salt on chloride concentrations in shallow monitoring wells at the site.

In sum, the chloride SSIs at TMW-2 and TMW-3 are attributable to sources other than impacts from the SCL4A. Recent chloride concentrations at these wells are similar to, and in the case of TMW-2, less than shallow background groundwater concentrations. Furthermore, chloride concentrations in the Missouri and Mississippi Rivers, which largely control groundwater flow at the site, exceed those concentrations measured at TMW-2 and TMW-3. Lastly, historical data indicate the presence of elevated chloride south of the UWL area, likely due to road salt placement. Recent construction activities and surface disturbances around the SCL4A, along with road salt placement, likely contributed chloride to the shallow groundwater in this area.

### 5.2.3 Total Dissolved Solids Concentrations

TDS alone is not a key indicator of CCR or FGD waste impacts (EPRI 2017, EPRI 2012). TDS is largely based on the concentration of major ions in groundwater (calcium, magnesium, sodium, potassium, carbonates, chloride, sulfate, etc.). Although TDS alone is not a key indicator of CCR impacts, an increase in some of the major ions associated with CCR (calcium, sodium, chloride, sulfate) can represent CCR impacts, and thus increased TDS can be indicative of CCR impacts if an alternative source may not be identified.

TDS concentrations at TMW-1 in November 2024 and February 2025 were 460 and 559 mg/L, respectively, which are slightly greater than the intrawell UPL of 452.6 mg/L. **Figure 5** displays a timeseries plot of all historical TDS concentrations at TMW-1 and the shallow background monitoring wells upgradient of the SEC (BMW-1S and BMW-3S). As shown in the plot, TDS concentrations at both shallow background monitoring wells are typically greater than TMW-1. The intrawell UPL for TDS based on these background wells is 608.2 mg/L, which exceeds both the November 2024 and February 2025 results at TMW-1. This is the UPL currently used for the shallow groundwater monitoring network for the SCPB, located north of the SCL4A. Because TDS concentrations at TMW-1 are below the UPL for shallow background groundwater, it is unlikely that the November 2024 SSI is a result of impacts from the SCL4A.

In addition to shallow background groundwater, TDS concentrations at TMW-1 are comparable to nearby shallow monitoring wells. **Figure 6** displays historical TDS results at each of the three downgradient monitoring wells within the SCL4A monitoring network. TDS results across these wells are generally stable over time, and TDS results at TMW-1 are typically lower than results at TMW-2, TMW-3, and TMW-6. Thus, current intrawell UPLs at TMW-2 (518 mg/L) and TMW-3 (493 mg/L) are greater than the UPL at TMW-1 (452.6 mg/L). Also shown in the figure are TDS concentrations measured at TMW-6, located approximately 500 feet south of TMW-1 and screened at a similar elevation. TMW-6 was installed in 2022 for monitoring the SCPD, immediately west of the SCL4A. TDS concentrations are notably higher at TMW-6, with a UPL of 719.8 mg/L calculated from eight baseline samples collected prior to receipt of CCR materials in the SCPD.

TDS concentrations at TMW-1 are similar to, or often less than, concentrations at shallow background monitoring wells and nearby monitoring wells without TDS SSIs. This indicates that the November 2024 SSI is not a result of CCR impacts and the current intrawell UPL at TMW-1 does not fully capture the natural geochemical variability of TDS within the shallow alluvial aquifer. Additionally, as discussed in Section 5.2.2, the casing of TMW-1 was lengthened in 2023 to accommodate berm construction around the SCPD. Substantial surface disturbances and

earthworks operations at the ground surface around the well may also contribute to increased TDS in the shallow alluvial aquifer.

### 5.2.4 Geochemical Signatures

Piper diagrams are useful visual aids for understanding water chemistry and identifying potential sources of geochemical variability both spatially and temporally. **Figure 7** displays a Piper diagram containing sampling results from November 2024 at TMW-2 and TMW-3 as well as BMMW-1S and BMW-3S. As discussed previously, the SCL4A manages primarily fly ash, but also minor amounts of other types of CCR materials. Shown on the Piper diagrams are distinct zones representing pore-water chemistry of the SCPA (bottom ash impoundment) and SCPB (fly ash impoundment). These zones were developed from a series of pore-water samples captured directly from the SCPA and SCPB CCR units in 2018. A leachate sample collected directly from within the SCPD CCR Unit by Gredell Engineering in December 2023 is also displayed on the diagram, representative of the geochemical signature of the FGD leachate material managed primarily at the SCPC and SCPD. The FGD leachate contains a similar geochemical signature to SCPA pore-water when plotted on a Piper Diagram. The Piper diagram displays notable geochemical similarity between groundwater at TMW-1, TMW-2, TMW-3, and the shallow background monitoring wells. If there were impacts from the SCL4A at either of these wells, it would be expected that their chemistries would plot in the areas between the background groundwater zone and the SCPA and/or SCPB porewater zones, which would represent a mixing of CCR-impacted and unimpacted background groundwater.

Altogether, monitoring wells TMW-1, TMW-2, and TMW-3 display a geochemical signature very similar to background groundwater, further evidence of a lack of groundwater impacts from CCR materials stored at the SCL4A.

## 6.0 DEMONSTRATION THAT SSI WAS NOT CAUSED BY SCL4A IMPACT

Based on the information presented in Section 5, the SSIs of chloride and TDS observed in November 2024 at TMW-1, TMW-2, and TMW-3 are not a result of impacts from the SCL4A. The SSIs appear to be a result of (1) a lack of elevated boron concentrations, a key CCR indicator, (2) naturally occurring TDS and chloride variability in site groundwater not fully captured in intrawell UPLs, (3) elevated chloride concentrations in the Missouri and Mississippi Rivers, and (4) construction activities and use of road salt during the construction of the SCPD and/or use on nearby roads.

Along with these lines of evidence, geochemical signatures of samples from TMW-1, TMW-2, and TMW-3 indicate a close similarity to background groundwater and do not reflect impacts by CCR materials managed at the SEC. Additionally, the SCL4A is documented to be properly constructed with an engineered composite liner system consisting of 2 feet of low permeability compacted clay overlain by a 60-mil HDPE liner to prevent impacts to groundwater.

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# Tables

**Table 1**  
**November 2024 Detection Monitoring Results**  
**SCL4A - Landfill Cell 4A**  
**Sioux Energy Center, St. Charles County, MO**

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS							
		BMW-1S	BMW-3S	Prediction Limit UG-3	UG-3	Prediction Limit TMW-1	TMW-1	Prediction Limit TMW-2	TMW-2	Prediction Limit TMW-3	TMW-3
<b>November 2024 Detection Monitoring Results</b>											
DATE	NA	11/20/2024	11/20/2024	NA	11/14/2024	NA	11/20/2024	NA	11/19/2024	NA	11/19/2024
pH	SU	6.57	6.72	6.678-7.373	6.94	6.531-7.438	7.16	6.71-7.226	6.81	6.573-7.424	6.75
BORON, TOTAL	µg/L	61.9 J	57.3 J	1,105	418	DQR	83.6 J	101.4	87.2 J	109	93.4 J
CALCIUM, TOTAL	µg/L	175,000	113,000	171,791	120,000	118,531	118,000	132,299	134,000	145,416	128,000
CHLORIDE, TOTAL	mg/L	14.2	13.1	84.34	19.7 J	4.359	3.8	4.531	5.8	3.383	18.7
FLUORIDE, TOTAL	mg/L	ND	ND	0.39	0.47 J	0.4613	0.37	0.4211	0.33	0.37	0.32 J
SULFATE, TOTAL	mg/L	37.1	17.1	136.3	79.1 J	62.35	63.3	86.88	27.7	65.78	43.7
TOTAL DISSOLVED SOLIDS	mg/L	613	413	661.4	497	452.6	460	518	462	493	467
<b>February 2025 Verification Sampling Event</b>											
DATE	NA				2/6/2025		2/7/2025		2/6/2025		2/6/2025
pH	SU										
BORON, TOTAL	µg/L										
CALCIUM, TOTAL	µg/L								120,000		
CHLORIDE, TOTAL	mg/L								4.8		17.7
FLUORIDE, TOTAL	mg/L				0.39						
SULFATE, TOTAL	mg/L						61.3				
TOTAL DISSOLVED SOLIDS	mg/L						559				

**NOTES:**

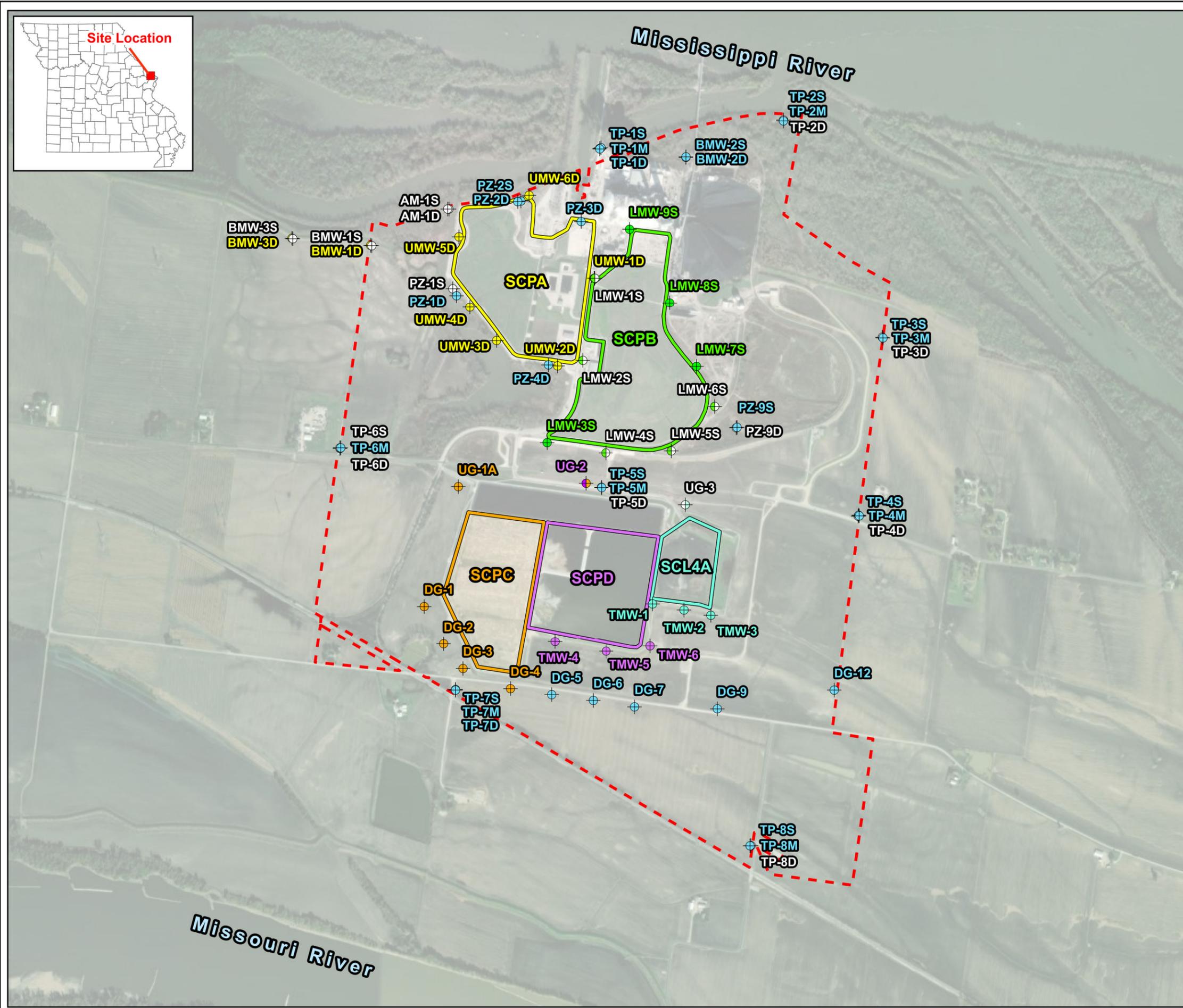
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
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.
8. If all background values are less than the Practical Quantitation Limit (PQL) then the Double Quantification Rule (DQR) is used.
9. 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.



PROJECT  
 CCR RULE GROUNDWATER MONITORING PROGRAM

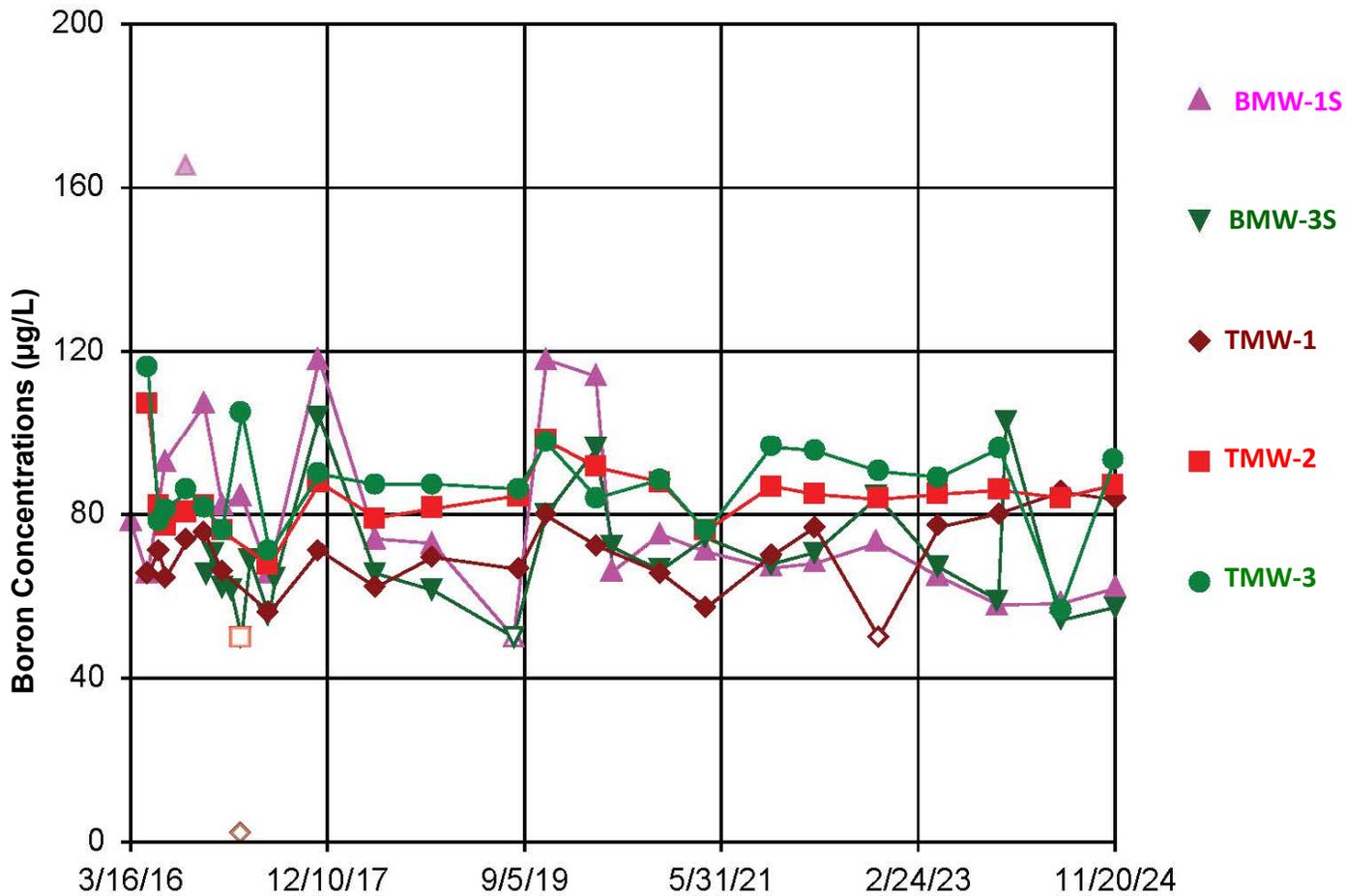
CLIENT  
 AMEREN MISSOURI  
 SIOUX ENERGY CENTER



DESIGN	JSI	YYYY-MM-DD	2025-06-02
PREPARED	GTM	PROJECT No.	23009-25
REVIEW	JSI	<b>FIGURE 1</b>	
APPROVED	MNH		

Path: C:\Users\CramMosey\Rocksmith Geoenvironmenting LLC\202007 - Ameren GMT - Documents\400 - Drawings - Figures\4.3-SECC\4.3.2 - Production\2025\CD\Figure 1 - Well Locations - No Extrusion Locations.aprx

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



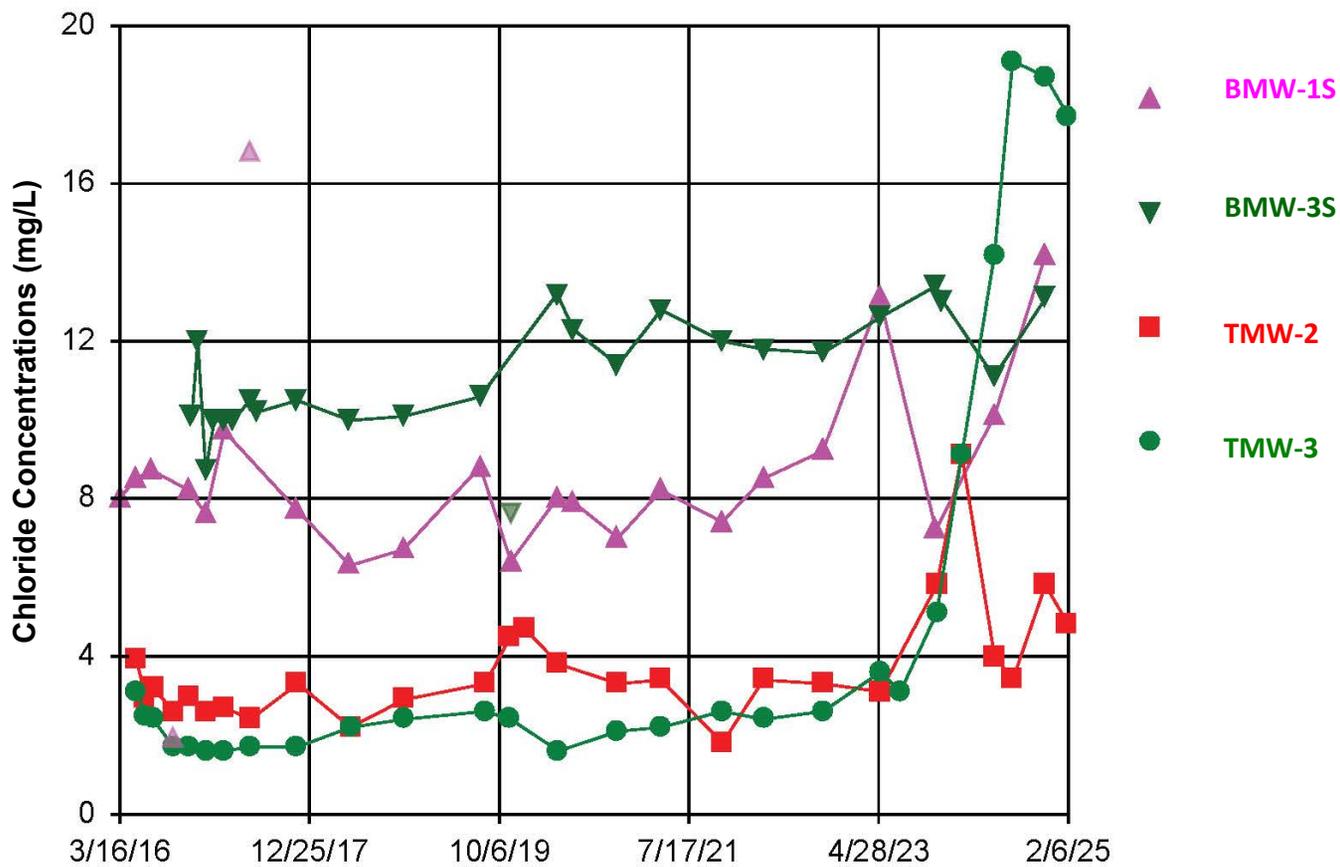
Notes

- 1) µg/L – Micrograms per liter.
- 2) Points not connected to lines are considered outliers as specified in the Updated Statistical Limit Technical Memorandum for the SCL4A.
- 3) Hollow symbols indicate non-detect values. Non-detects plotted as ½ the Method Detection Limit.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JTR	CHECKED GTM	REVIEWED MNH	DATE 2025-05-23	



TITLE <b>Timeseries Plot of Boron Concentrations</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>2</b>

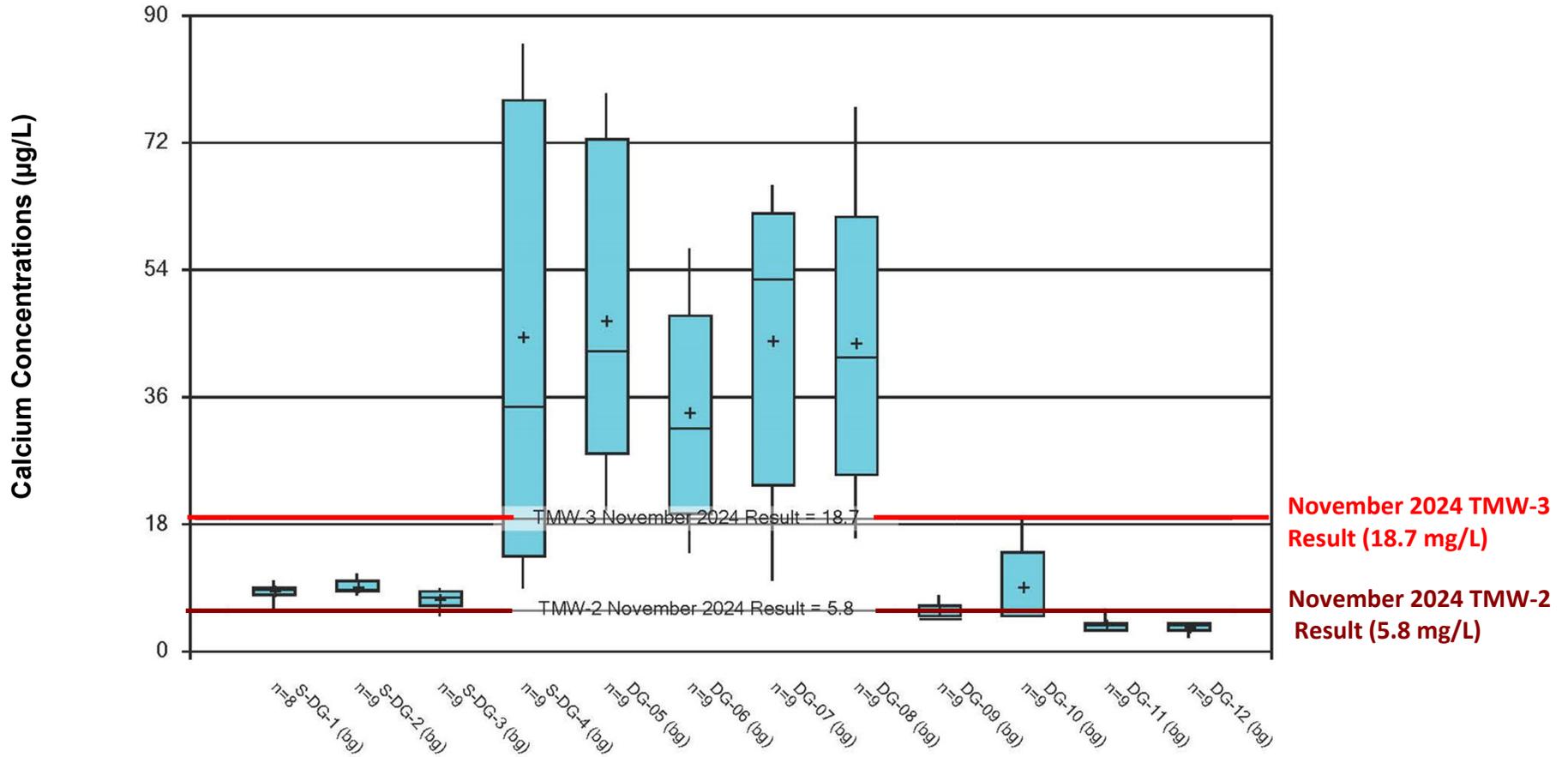


Notes

- 1) mg/L – Milligrams per liter.
- 2) Points not connected to lines are considered outliers as specified in the Updated Statistical Limit Technical Memorandum for the SCL4A.

CLIENT/PROJECT <b>AMEREN MISSOURI          SIOUX ENERGY CENTER</b>					TITLE <b>Time Series Plot of Chloride Concentrations</b>		
DRAWN JTR	CHECKED GTM	REVIEWED MNH	DATE 2025-05-23			Rev No. NA	JOB NO. 23009-25

### Box & Whiskers Plot

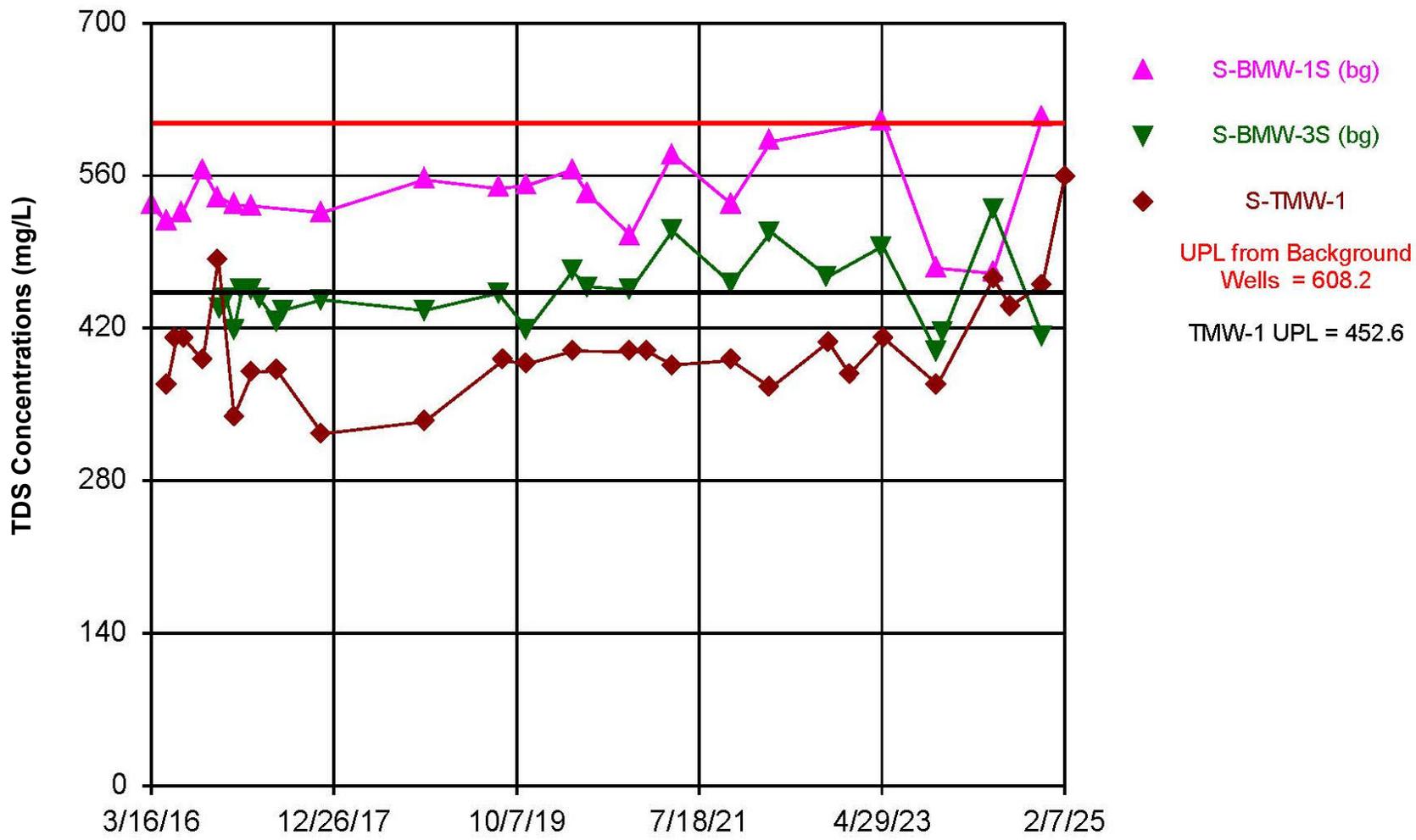


- Notes
- 1) µg/L – Micrograms per liter.
  - 2) UPL – Upper Prediction Limit.
  - 3) CCR – Coal Combustion Residuals.
  - 4) UWL – Utility Waste Landfill.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JTR	CHECKED GTM	REVIEWED MNH	DATE 2025-05-27	



TITLE <b>Pre-CCR Chloride Plots – Downgradient UWL Monitoring Wells</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>4</b>

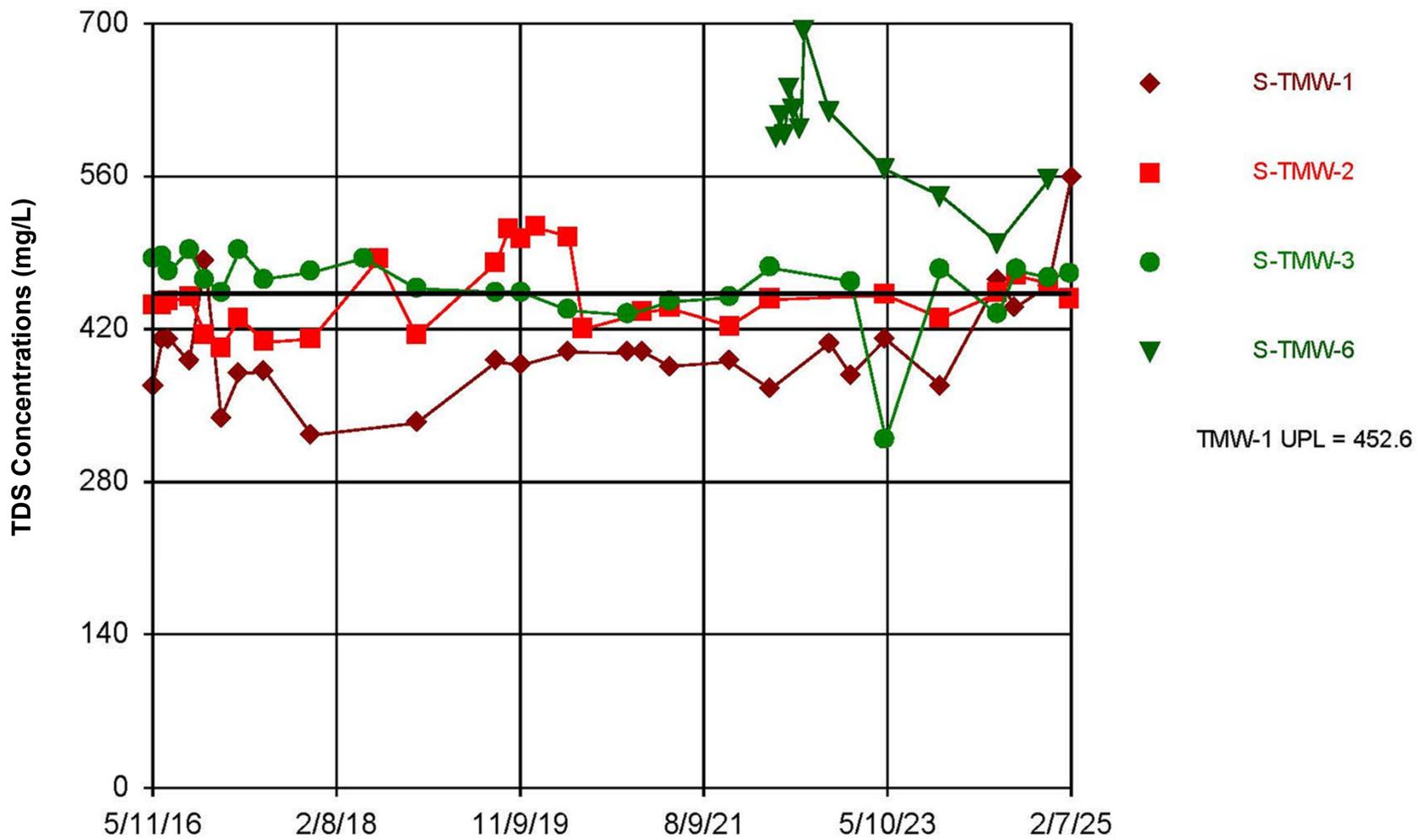


Notes  
1) mg/L – Milligrams per liter.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JTR	CHECKED GTM	REVIEWED MNH	DATE 2025-05-23	



TITLE <b>Time Series Plot of Total Dissolved Solids – TMW-1 and Background Wells</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>5</b>



Notes  
 1) mg/L – Milligrams per liter.

CLIENT/PROJECT AMEREN MISSOURI SIOUX ENERGY CENTER				
DRAWN JTR	CHECKED GTM	REVIEWED MNH	DATE 2025-05-23	

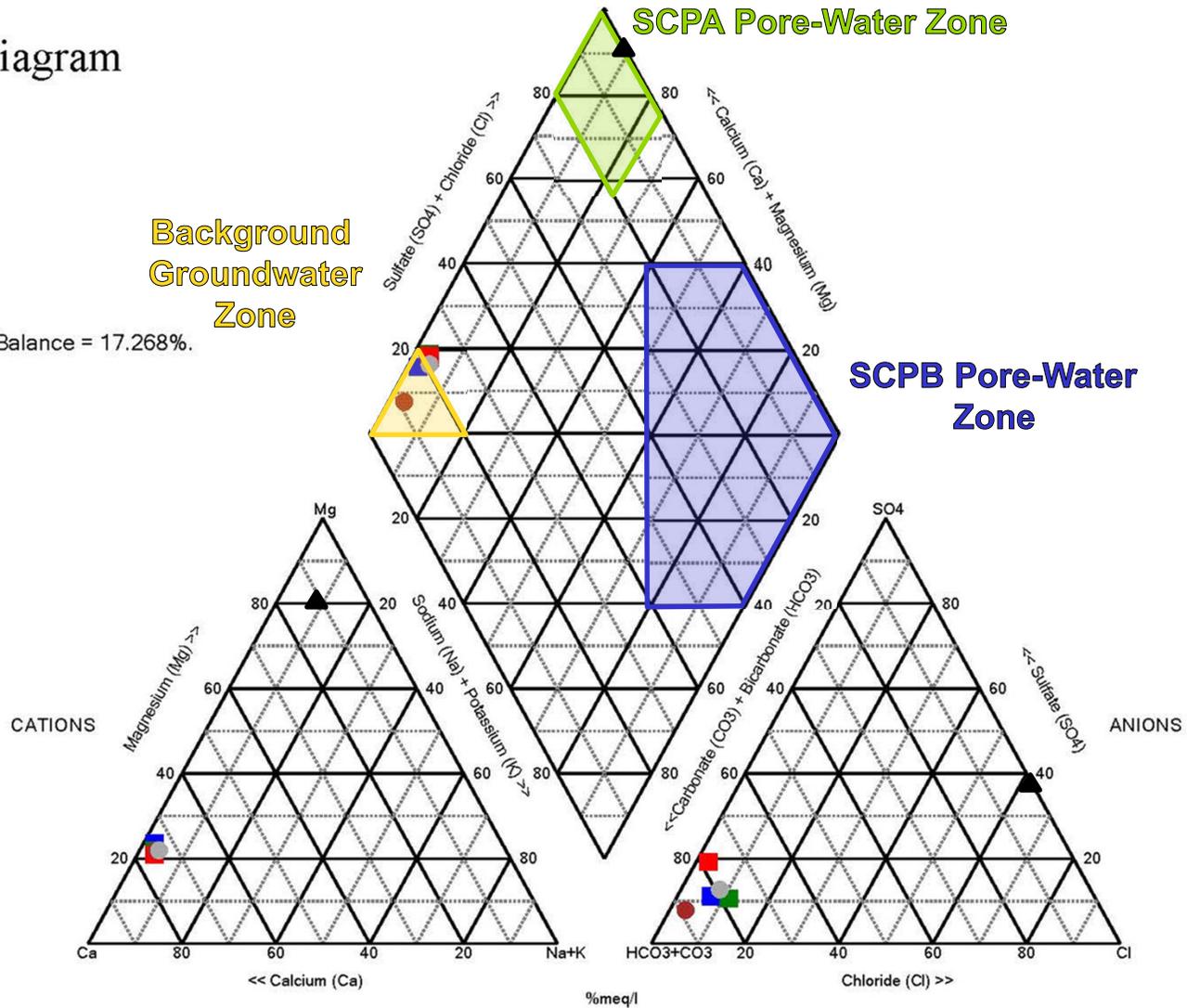


TITLE Time Series Plot of Total Dissolved Solids at Monitoring Wells Near TMW-1		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>6</b>

# Piper Diagram

Background  
Groundwater  
Zone

Cation-Anion Balance = 17.268%.



- S-BMW-1S\* 2024-11-20
- S-BMW-3S\* 2024-11-20
- S-TMW-1 2024-11-20
- S-TMW-2 2024-11-19
- S-TMW-3 2024-11-19
- ▲ SCPD Leachate (FGD Material) 2023-12-05

## Notes

- 1) Piper diagram generated using Sanitas Software.
- 2) %mEq/l – milliequivalents per liter
- 3) SCPA and SCPB pore-water zones developed from CCR Unit porewater sampling in 2018.
- 4) A singular FGD leachate sample was collected from the SCPD in 2023.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>					TITLE <b>Piper Diagram of November 2024 Results</b>		
DRAWN GTM	CHECKED JTR	REVIEWED MNH	DATE 2024-12-19			Rev No. NA	JOB NO. 23009-25

# Appendix C

## Alternative Source Demonstration – May 2025 Sampling Event

REPORT

# SCL4A – Alternative Source Demonstration

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

December 24, 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 Road  
Maryland Heights, MO 63043



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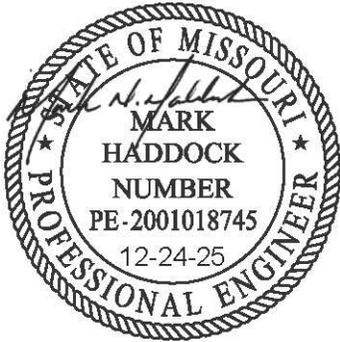
## 1.0 CERTIFICATION STATEMENT

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This SCL4A – *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 SCL4A – *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 (USEPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCL4A – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for Statistically Significant Increases (SSIs) identified for Ameren Missouri’s (Ameren) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) Cell 4A, referred to as the SCL4A. 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 the 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.

## 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 the SCL4A. The SEC is approximately 1,100 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 SCL4A 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, which can range from approximately 100 to 130 feet in thickness, make up 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 silts and clays. 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 Cell 4A – SCL4A

UWL Cell 4A is referred to by Ameren as the SCL4A, or “Landfill Cell 4A.” The SCL4A is approximately 15 acres in size and is located south of the generating plant on the south side of Highway 94 (**Figure 1**). The CCR Unit manages CCR from the SEC including “fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels” (Gredell and Reitz & Jens, 2014). These wastes are managed using a dry disposal process and are moisture conditioned (30-40% moisture content) to minimize dust and facilitate disposal. The CCR waste is trucked across Highway 94 from the plant and disposed in the SCL4A.

The SCL4A was constructed with a 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 high density polyethylene (HDPE) geomembrane liner. Information on the design of the UWL is available in the 2014 Proposed Construction Permit Modification, Construction Permit Number 0918301 (Gredell and Reitz & Jens, 2014).

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 seasonal low elevation for groundwater. Quarterly groundwater samples have been collected at UG-3 since June 2008 for the analysis of state required UWL



parameters, and TMW-1, TMW-2, and TMW-3 have been sampled since May 2016 for CCR Rule sampling events.

The permit for the SEC UWL was issued July 30, 2010 (permit #0918301) for the SCPC (Cell 1). Nine sampling events were performed prior to July 30, 2010, and represent groundwater quality prior to CCR placement in the SCPC. The SCL4A was the second cell that was constructed at this UWL. The SCL4A construction was not completed until 2014 and no CCR was placed in the unit until after the final revisions to the Proposed Construction Permit Modification on August 16, 2014. The results from these pre-disposal monitoring events are used, in conjunction with other site information, in the ASD presented below.

### 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, the following were completed prior to the October 17, 2017 deadline; (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) the required eight baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of the CCR Rule.

The groundwater monitoring system for the SCL4A consists of six monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on **Figure 1**. One existing monitoring well (UG-3) was installed by Gredell Engineering Resources, Inc., in December 2007 as a part of the state UWL monitoring program. The remaining monitoring wells (TMW-1, TMW-2, TMW-3, BMW-1S, and BMW-3S) were installed by Golder Associates Inc. (Golder) in 2015 and 2016 for CCR Rule groundwater monitoring purposes. More information on the design and installation of the monitoring wells is provided in the SCL4A GMP and the SCL4A 2017 Annual Report.

Between May 2016 and June 2017, eight baseline sampling events were completed for the SCL4A. After baseline sampling, the first Detection Monitoring event was completed in November 2017 and Detection Monitoring has continued on a semi-annual basis thereafter. Laboratory testing was performed for the following Appendix III constituents during Detection Monitoring:

- Boron
- Calcium
- Chloride
- Fluoride
- pH
- Sulfate
- Total dissolved solids (TDS)

In January 2018, background results from the eight baseline sampling events were used to calculate statistical upper prediction limits (UPLs). These UPLs were then compared to the Detection Monitoring results from the November 2017 samples and subsequent semi-annual Detection Monitoring sampling events. If a result was higher than the calculated UPL for a given constituent, this was considered an initial exceedance, and a verification sample was then collected and tested in accordance with the SCL4A Statistical Analysis Plan (SAP). In March 2024, the background dataset used to calculate statistical limits was expanded to include a total number of background observations to at least 20 per constituent per well. The following provides a summary of the Detection Monitoring results to date.

Since November 2017, several ASDs have been prepared for SSIs at wells UG-3, TMW-1, TMW-2, and TMW-3. These previous ASDs are available in the 2018 through 2024 Annual Reports for the SCL4A and are available on Ameren's publicly available CCR Compliance website (<https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports>). These ASDs have demonstrated that previous SSIs at the site were not caused by the SCL4A, and are primarily the result of relatively low calculated UPLs that were not representative of the natural geochemical variability within the alluvial aquifer or primarily caused by the SCL4A being downgradient from the SCPA, which is currently in Corrective Action.

In May 2025, initial exceedances were identified for chloride and TDS at TMW-1, chloride at TMW-2, and chloride at TMW-3. Verification sampling results from July 2025 confirmed SSIs of TDS and chloride at TMW-1 and chloride at TMW-3. Verification results did not confirm the initial exceedance of chloride at TMW-2. Results from this sampling event are provided in **Table 1**.

## 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

The May 2025 SSIs were observed at monitoring wells TMW-1 and TMW-3. These wells 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-1 and TMW-3 are located south of the SCL4A and Highway 94, 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 at the SCL4A contained low-level pre-existing impacts from CCR that pre-date SCL4A operation. As a result of these pre-existing impacts, the SCL4A 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.

**Table 2** below provides a summary of the historical UPLs at TMW-1 and TMW-3 and the shallow background wells (BMW-1S and BMW-3S), as well as the range of results and most recent sampling results.

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

Constituent	Well ID	UPL Based on Baseline Events	August 2019 Updated UPL	June 2021 Updated UPL	Current UPL (See Note 7)	Baseline Sampling Event Range	Detection Monitoring Sampling Range (November 2017 – February 2025)	May 2025 Result	July 2025 Result
Chloride (mg/L)	TMW-1	5.179	5.179	4.199	4.359	1.8-3.9	1.5 – 12.8 J	10.8 J	11.8 J
Chloride (mg/L)	TMW-3	3.1	3.1	3.1	3.383	1.6 – 3.1	1.6 – 19.1	16.8 J	17.1
Total Dissolved Solids (mg/L)	TMW-1	506.2	485.1	462.8	452.6	339 – 483	323 – 559	466	487
Chloride (mg/L)	Background Wells (BMW-1S & BMW-3S)	12.34	12.32	13.12	14.152	1.9 – 16.8	6.3 – 14.2	11.4 & 10.6	NS
Total Dissolved Solids (mg/L)	Background Wells (BMW-1S & BMW-3S)	565	565	579	634.46	409 - 565	398 – 1,170	615 & 449	NS

Notes:

- 1) mg/L – milligrams per liter.
- 2) UPL – upper prediction limit.
- 3) UPLs calculated using Sanitas™ software.
- 4) UWL – Utility Waste Landfill.
- 5) J – result is an estimated value.
- 6) NS – Not Sampled.
- 7) The interwell UPLs for the shallow background wells listed are used for the SCPB detection monitoring network. Current UPLs for these wells were most recently updated in September 2025. TMW-1 and TMW-3 UPLs were most recently updated in March 2024.

## 5.0 EVIDENCE OF SSI FROM ALTERNATIVE SOURCE

Several different lines of evidence indicate that the SSIs at the SCL4A are not caused by impacts from the SCL4A, but rather from an alternative source. The following section describes the different lines of evidence, listed below, that demonstrate this position.

- A lack of elevated boron concentrations that would be expected with impacts from the SCL4A.

- Wells with SSIs contain chloride and TDS concentrations similar to concentrations measured at nearby and background monitoring wells.
- Chloride concentrations in the Missouri and Mississippi Rivers adjacent to the SEC exceed concentrations at TMW-1 and TMW-3.
- Chloride concentrations do not correlate with boron concentrations, a primary CCR indicator, across the SEC.
- Construction activities and surface disturbances adjacent to the SCL4A, accompanied by the use road salt (NaCl) nearby.
- Geochemical signatures of groundwater, CCR Unit porewater, and leachate indicate SCL4A monitoring well samples are similar to unaffected background groundwater and dissimilar to signatures of CCR materials managed at the SCL4A.
- Documentation of construction of the SCL4A with a composite liner system including a 60-mil HDPE geomembrane liner and a 2-foot thick compacted clay layer.

### 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)
<b>Fly Ash</b>	Fine grained, powdery material composed mostly of silica made from the burning of finely ground coal in the boiler.	<ul style="list-style-type: none"> <li>■ Boron</li> <li>■ Molybdenum</li> <li>■ Lithium</li> <li>■ Sulfate</li> </ul>
<b>Boiler Slag / Bottom Ash</b>	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.	<ul style="list-style-type: none"> <li>■ Bromide</li> <li>■ Potassium</li> <li>■ Sodium</li> <li>■ Fluoride</li> </ul>
<b>Flue Gas Desulfurization (FGD) Material</b>	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.	<ul style="list-style-type: none"> <li>■ Sulfate</li> <li>■ Fluoride</li> <li>■ Calcium</li> <li>■ Boron</li> <li>■ Bromide</li> <li>■ Chloride</li> </ul>

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.

Historically, the SCL4A has predominately received fly ash, but minor amounts of other CCR materials are also managed at the unit. FGD type wastes at the SEC are primarily managed at the SCPC (closed) and SCPD, located to the west of the SCL4A.

## 5.2 Evaluation of SSIs

### 5.2.1 Boron Concentrations

Boron is typically the key indicator for fly ash and boiler slag/bottom ash impacts because it is typically present in the leachate from these types of waste, is not a common anthropogenic contaminant, and is non-reactive and mobile in most hydrogeological environments (EPRI 2012). The non-reactive and mobile nature makes boron an early indicator of impacts from a CCR Unit. If groundwater was impacted by the SCL4A, current boron concentrations should be statistically elevated with respect to pre-CCR placement baseline results as well as background monitoring results.

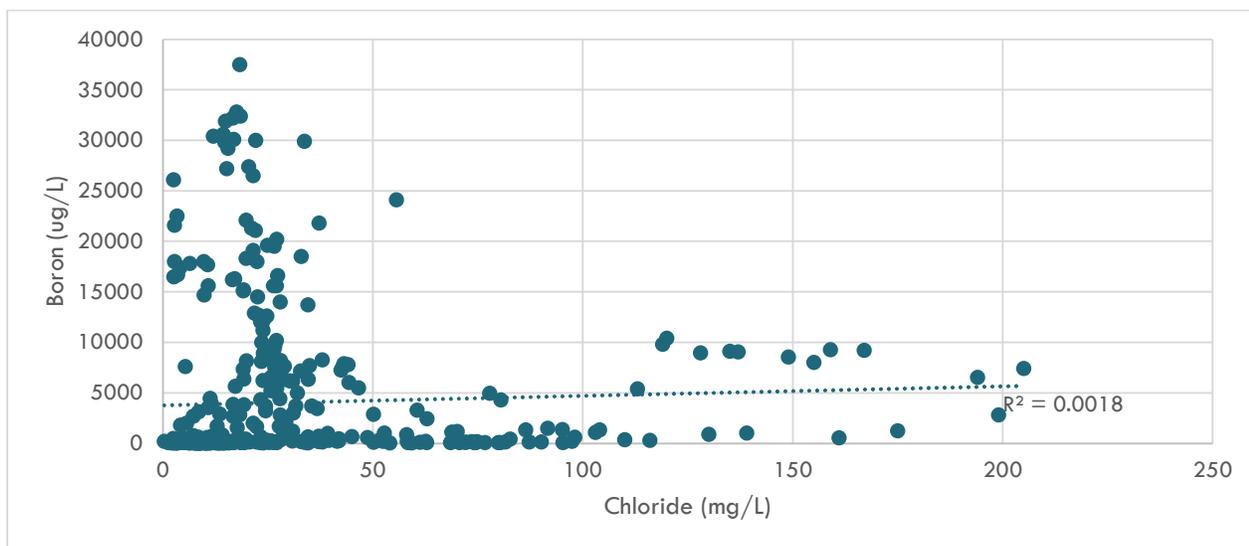
**Figure 2** displays historical boron concentrations at TMW-1 and TMW-3 as well as background wells BMW-1S and BMW-3S. If the SSIs at these monitoring wells were caused by impacts from the SCL4A, boron concentrations would increase as a first indicator of CCR influence on the groundwater. **Figure 2** demonstrates that current boron concentrations are nearly identical to those from previous sampling events and shallow background levels. Stable boron concentrations over time at TMW-1, and TMW-3 indicate that a source other than CCR is likely the cause of the SSIs.

### 5.2.2 Chloride Concentrations

Chloride is not known to be a key indicator of fly ash or boiler slag/bottom ash (EPRI 2012) but can be an indicator for FGD type waste and is commonly found in shallow groundwater systems near salt and brine treated roadways.

Based on groundwater data collected across the SEC, chloride does not appear to be a strong indicator of CCR impacts across the Site. **Figure 3** 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.

**Figure 3 – Historical Boron vs. Chloride Concentrations at SEC CCR Rule Monitoring Wells**



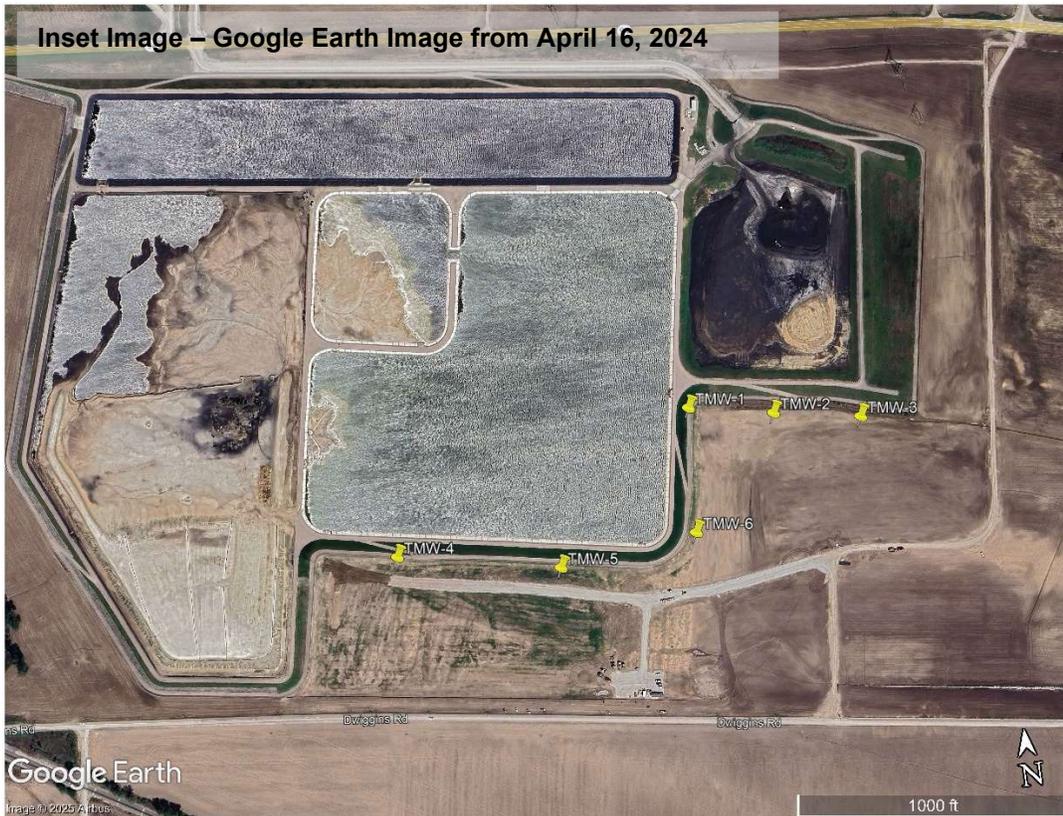
At the SEC, FGD waste is primarily managed in the SCPC (closed) and SCPD, located west of the SCL4A (see **Figure 1**). The nearest public roadways to TMW-1 and TMW-3 are Highway 94 approximately 1,400 feet to the north, and Dwiggins Road approximately 1,100 feet to the south. Additionally, there is a CCR haul road directly north of the SCL4A, and there were temporary equipment haul roads constructed in 2023 to the east and south of the SCL4A associated with the construction of the SCPD.

As displayed in **Table 2**, chloride concentrations from the May 2025 sampling event at TMW-1 and TMW-3 were 10.8 J and 16.8 J mg/L, respectively. Chloride concentrations of 11.8 J and 17.1 mg/L were measured at TMW-1 and TMW-3 during July 2025 verification sampling. These values exceed the original calculated chloride UPLs of 5.179 and 3.1 mg/L at TMW-1 and TMW-3, which were calculated based on eight baseline sampling events in 2016 and 2017. There have been subsequent updates to the UPLs since the initial baseline limits, and most recently, UPLs were updated in March 2024. Current UPLs for chloride are 4.359 mg/L at TMW-1 and 3.383 mg/L at TMW-3.

Prior to the May 2025 sampling event, chloride concentrations in shallow alluvial background monitoring wells (BMW-1S and BMW-3S) located approximately 1 mile to the northwest of the SCL4A have ranged from 6.3 to 13.4 mg/L since their installation in 2016, with outliers of 1.9 and 16.8 mg/L at BMW-1S. Based on baseline sampling, the initial intrawell UPL for chloride was 12.34 mg/L at these shallow background wells. The current UPL (updated September 2025) is 14.152 mg/L, which is the limit currently used for the SCPB detection monitoring network. **Figure 4** displays chloride results at the monitoring wells with chloride SSIs compared to results from the shallow background wells. This figure displays that recent chloride concentrations at TMW-3 slightly exceed shallow background concentrations. However, chloride results at TMW-1 continue to remain below or near shallow background concentrations. Chloride concentrations across each of the wells shown display a degree of natural variability.

As discussed in previous Annual Reports for the SCL4A, groundwater flow across the SEC is largely controlled by the respective elevations of the Mississippi and Missouri Rivers to the north and south of the site. 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. Surface water sampling of the Mississippi and Missouri Rivers completed in 2017 and 2018 immediately to the north and south of the SEC revealed chloride concentrations ranging from 22.2 mg/L to 41.0 mg/L. Thus, at concentrations below these, as is the case for chloride at TMW-1 and TMW-3, the usefulness of chloride as an CCR waste impact indicator is diminished.

Additionally, in recent years, there have been significant disturbances to the surface conditions around the SCL4A monitoring wells. The inset images below display the changing surface conditions in recent years near these monitoring wells. Gravel haul roads and a parking lot were built to the south of the SCL4A in mid-2022 as part of construction activities for the adjacent SCPD (shown in the 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 the SCPD (shown in the inset aerial image taken 4/16/2024). Following construction activities, the temporary gravel roads and parking lot were removed; however, a permanent gravel road now exists inside the perimeter fence surrounding the SCPD at the toe of the berm (shown in the inset aerial image taken 3/6/2025). The casing of monitoring well TMW-1 was also lengthened in 2023 to accommodate the change in ground surface elevation from berm construction. Overall, since 2022, surface conditions around the SCL4A monitoring wells have been variable and are not representative of surface conditions during baseline sampling. **Figure 5** shows a time-series graph of chloride concentrations at TMW-1 and TMW-3 with the period of SCPD construction indicated. Variability in chloride concentrations at these wells increased dramatically shortly after the beginning of these construction ground surface disturbances. These changing surface conditions may contribute to geochemical variability observed within these shallow monitoring wells installed at a depth of approximately 30 feet. Recent sampling results at these wells indicate moderate decreases in chloride, and it is expected that chloride concentrations will continue to decline as surface conditions stabilize.





Road salt (composed primarily of sodium chloride) was applied to these construction roads and roads leading to the site for ice control. The application of road salt is a common alternative source for elevated chloride concentrations near highways and roads that are treated with salt during the winter. To further investigate the geochemical variability of chloride in the UWL area, 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 materials in the SCPC, beginning in May 2010. Each of these DG-xx monitoring wells are screened at approximately the same depth as TMW-1 and TMW-3 in the shallow zone of the alluvial aquifer. **Figure 6** displays a box and whisker plot of chloride concentrations for the DG-xx wells prior to the receipt CCR materials in any CCR unit south of Highway 94. Recent chloride results at TMW-1 and TMW-3 are well within and below the historical ranges of many of DG-xx wells, the closest of which is approximately 1,100 feet to the south. This figure shows notable variability in local groundwater chemistry that pre-dates CCR placement in the area. Wells DG-4 through DG-8 are located only 50 feet south of Dwiggin Road, which receives salt treatment for ice control. These wells display significant variability in chloride concentrations, with average concentrations greater than recent results at TMW-1 and TMW-3. These data highlight the impact of road salt on chloride concentrations in shallow monitoring wells at the site.

In summary, the chloride SSIs at TMW-1 and TMW-3 are attributable to sources other than impacts from the SCL4A. Recent chloride concentrations at these wells are similar to, and in the case of TMW-1, less than shallow background groundwater concentrations. Furthermore, chloride concentrations in the Missouri and Mississippi Rivers, which largely control groundwater flow at the site, exceed those concentrations measured at TMW-1 and TMW-3. Lastly, historical data indicate the presence of elevated chloride south of the SCL4A area, likely due to road salt placement along Dwiggin Road. Recent construction activities and surface disturbances around the SCL4A, along with road salt placement, likely contributed chloride to the shallow groundwater in this area and coincide with chloride increases at these wells.

### 5.2.3 Total Dissolved Solids Concentrations

TDS alone is not a key indicator of CCR or FGD waste impacts (EPRI 2017, EPRI 2012). TDS is largely based on the concentration of major ions in groundwater (calcium, magnesium, sodium, potassium, carbonates, chloride, sulfate, etc.). Although TDS alone is not a key indicator of CCR impacts, an increase in some of the major ions associated with CCR (calcium, sodium, chloride, sulfate) can represent CCR impacts, and therefore increased TDS can be indicative of CCR impacts if an alternative source may not be identified.

TDS concentrations at TMW-1 in May 2025 and July 2025 were 466 and 487 mg/L, respectively, which are slightly greater than the intrawell UPL of 452.6 mg/L. **Figure 7** displays a timeseries plot of all historical TDS concentrations at TMW-1 and the shallow background monitoring wells upgradient of the SEC. As shown in the plot, TDS concentrations at both shallow background monitoring wells are typically greater than TMW-1. The intrawell UPL for TDS based on these background wells is 634.46 mg/L, which exceeds both the May 2025 and July 2025 results at TMW-1. This is the UPL currently used for the shallow groundwater monitoring network for the SCPB, located north of the SCL4A. Because TDS concentrations at TMW-1 are below the UPL for shallow background groundwater, it is unlikely that the May 2025 SSI is a result of impacts from the SCL4A.

In addition to shallow background groundwater, TDS concentrations at TMW-1 are comparable to nearby shallow monitoring wells. **Figure 8** displays historical TDS results at each of the three downgradient monitoring wells within the SCL4A monitoring network, and TMW-6, located 500 feet south of TMW-1. TDS results across these wells are generally stable over time, and TDS results at TMW-1 are typically lower than results at nearby wells TMW-2, TMW-3, and TMW-6. current intrawell UPLs at TMW-2 (518 mg/L) and TMW-3 (493 mg/L) are greater than the UPL at TMW-1 (452.6 mg/L). Also shown in the figure are TDS concentrations measured at TMW-6, located approximately 500 feet south of TMW-1 and screened at a similar elevation. TMW-6 was installed in 2022 for monitoring the SCPD, immediately west of the SCL4A. TDS concentrations are notably higher at TMW-6, with a UPL of 719.8 mg/L calculated from eight baseline samples collected prior to receipt of CCR materials in the SCPD.

TDS concentrations at TMW-1 are similar to, or often less than, concentrations at shallow background monitoring wells and nearby monitoring wells without TDS SSIs. This indicates that the May 2025 SSI is not a result of CCR impacts and the current intrawell UPL at TMW-1 does not fully capture the natural geochemical variability of TDS within the shallow alluvial aquifer. Additionally, as discussed in Section 5.2.2, the casing of TMW-1 was lengthened in 2023 to accommodate berm construction around the SCPD. Substantial surface disturbances and earthwork operations at the ground surface around the well may also contribute to increased TDS in the shallow alluvial aquifer.

### 5.2.4 Geochemical Signatures

Stiff diagrams are useful for visualizing major ion chemistry from sampled wells as a shape. 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 historic or background groundwater data to one more closely resembling the leachate (EPI, 2012).

**Figure 9** displays Stiff diagrams of groundwater collected at TMW-1 and TMW-3 as well as shallow background monitoring wells collected during the May 2025 sampling event. Also displayed are stiff diagrams of CCR porewater collected directly from the SCPA (bottom ash) and SCPB (fly ash) CCR units in 2018 and FGD leachate collected from the SCPD in 2023. Data used to generate these Stiff diagrams are presented in **Table 4**. As discussed in Section 3.2, the SCL4A manages a variety of CCR materials, including bottom ash, fly ash, FGD materials, and more. As shown in the figure, Stiff diagrams of TMW-1 and TMW-3 strongly resemble the Stiff diagrams for shallow background groundwater collected upgradient of the SEC. In general, the SCPA porewater, SCPB porewater, and SCPD leachate present geochemical signatures distinct from one another and shallow background groundwater. Given these samples were directly collected from CCR Units, these porewater and leachate samples represent water sources impacted by bottom ash, fly ash, and FGD leachate. If there were impacts from the SCL4A, it would be expected that Stiff diagrams for TMW-1 and TMW-3 would display an intermediate, mixed signature between background and one or more CCR Unit samples. Rather, TMW-1 and TMW-3 display geochemical signatures on Stiff diagrams nearly identical to shallow background groundwater, with no indication of impacts from CCR materials managed in the SCL4A.

## 6.0 DEMONSTRATION THAT SSIS WERE NOT CAUSED BY SCL4A IMPACTS

Based on the information presented in Section 5.0 above, the SSIs of chloride and TDS observed in May 2025 at TMW-1 and TMW-3 are not a result of impacts from the SCL4A. 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 CCR indicator parameters such as boron are not elevated when comparing recent results with baseline sampling results collected before CCR placement in the SCL4A.
- Documentation of pre-existing, low-level concentrations of CCR indicators and other parameters in groundwater that pre-date the SCL4A operation.
- Current UPLs for chloride and TDS that do not capture the full natural geochemical variability of the alluvial aquifer.
- Chloride concentrations in the Mississippi and Missouri Rivers exceed concentrations observed in monitoring wells TMW-1 as well as TMW-3 and the river is a source of recharge to the shallow alluvial aquifer.
- Application of road salt on SCL4A perimeter roads and SCPD construction roads adjacent to monitoring wells TMW-1 and TMW-3 causing increases in chloride concentrations.
- Geochemical signatures of samples from TMW-1 and TMW-3 indicate a close similarity to shallow background groundwater and do not reflect impacts by CCR materials managed at the SEC.

Along with these lines of evidence listed above, the SCL4A is lined with a 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 which was designed and constructed to properly contain CCR and prevent groundwater impacts.

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- Rocksmith Geoengineering, LLC. 2024, Updated Statistical Limits with Additional Background Data, Utility Waste Landfill Cell 4A (SCL4A), Sioux Energy Center – St. Charles County, Missouri, USA.
- USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Resource Conservation and Recovery – Program Implementation and Information Division. March 2009.
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-

# Tables

**Table 1**  
**May 2025 Detection Monitoring Results**  
**SCL4A - Landfill Cell 4A**  
**Sioux Energy Center, St. Charles County, MO**

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS							
		BMW-1S	BMW-3S	Prediction Limit UG-3	UG-3	Prediction Limit TMW-1	TMW-1	Prediction Limit TMW-2	TMW-2	Prediction Limit TMW-3	TMW-3
<b>May 2025 Detection Monitoring Results</b>											
DATE	NA	5/7/2025	5/7/2025	NA	5/8/2025	NA	5/8/2025	NA	5/9/2025	NA	5/9/2025
pH	SU	6.82	6.85	6.678-7.373	6.94	6.531-7.438	6.96	6.71-7.226	6.76	6.573-7.424	6.78
BORON, TOTAL	µg/L	56.5 J	55.1 J	1,105	282	DQR	75.3 J	101.4	78.4 J	109	83.5 J
CALCIUM, TOTAL	µg/L	177,000 J	129,000	171,791	137,000	118,531	118,000	132,299	112,000	145,416	121,000
CHLORIDE, TOTAL	mg/L	11.4	10.6	84.34	24.8	4.359	10.8 J	4.531	6.4	3.383	16.8 J
FLUORIDE, TOTAL	mg/L	0.26	0.30	0.39	ND	0.4613	0.34 J	0.4211	0.22	0.37	0.16 J
SULFATE, TOTAL	mg/L	35.1	24.5	136.3	89.7	62.35	57.3 J	86.88	27.2	65.78	45.0 J
TOTAL DISSOLVED SOLIDS	mg/L	615	449	661.4	576	452.6	466	518	450	493	476
<b>July 2025 Verification Sampling Event</b>											
DATE	NA						7/10/2025		7/10/2025		7/10/2025
pH	SU										
BORON, TOTAL	µg/L										
CALCIUM, TOTAL	µg/L										
CHLORIDE, TOTAL	mg/L						11.8 J		3.0		17.1
FLUORIDE, TOTAL	mg/L										
SULFATE, TOTAL	mg/L										
TOTAL DISSOLVED SOLIDS	mg/L						487				

**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.
8. If all background values are less than the Practical Quantitation Limit (PQL) then the Double Quantification Rule (DQR) is used.
9. 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: JTR  
Reviewed By: JSI

**Table 4**  
**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 <sup>(1)</sup> (mg/L)
<b>Detection Monitoring - May 2025</b>							
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-TMW-1	4.05	4.56	118	22.2	10.8 J	57.3	359
S-TMW-3	4.55	5.99	121	22.2	16.8 J	45.0 J	375
<b>SCPA (Bottom Ash Pond) Porewater<sup>2</sup> - February-March 2018</b>							
S-SCPA-1S	81.4	55.2	825	4.88	26.0	2080	549
S-SCPA-1D	27.0	11.8	101	23.9	25.0	200	228
S-SCPA-2	13.9	4.35	73.4	20.0	20.5	48.5	219
S-SCPA-3S	58.5	40.1	501	9.60	23.1	1290	170
S-SCPA-3D	116	60.3	548	60.2	27.1	1820	185
<b>SCPB (Fly Ash Pond) Porewater<sup>2</sup> - February-March 2018</b>							
S-SCPB-1	314	74.9	37.2	0.0387 J	51.7	630	326
S-LB-2	108	24.9	112	0.122	25.7	451	133
S-LB-4	76.1	25.2	94.1	0.108	38.2	318	115
S-LB-5	267	91.0	40.1	0.0284 J	30.5	393	468
<b>FGD Leachate Data<sup>3</sup> - December 2023</b>							
LEACH	768	177	911	3980	7390	5820	35.0

Notes:

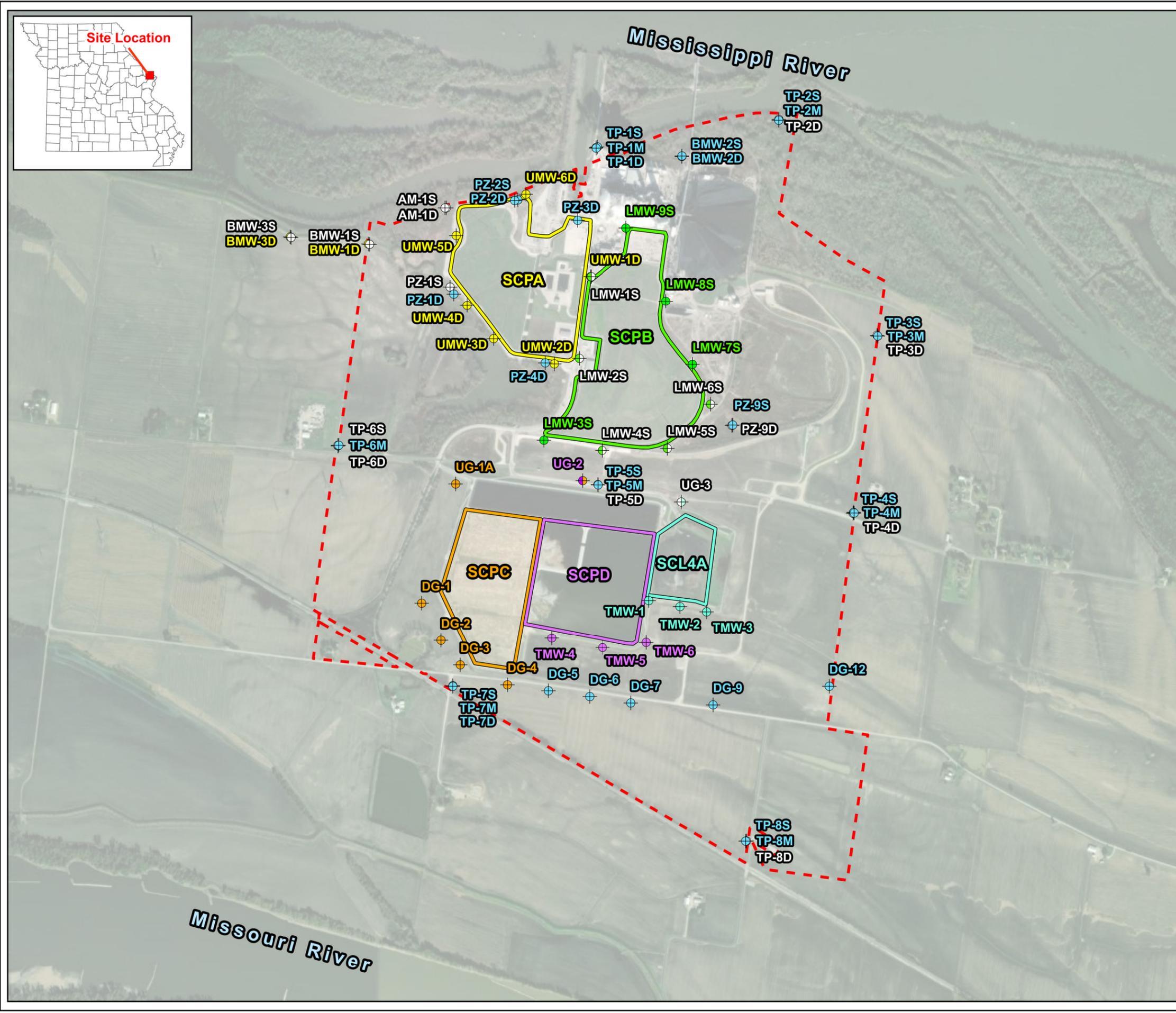
- 1) Alkalinity is equal to Carbonate + Bicarbonate.
- 2) Porewater data was collected during the SCPB ASD investigation in February-March 2018.
- 3) Flue gas desulfurization (FGD) leachate sample collected from the SCPD in December 2023.
- 4) mg/L - milligrams per liter.
- 5) J - Value is an estimate.

Prepared by: GTM  
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 - 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.



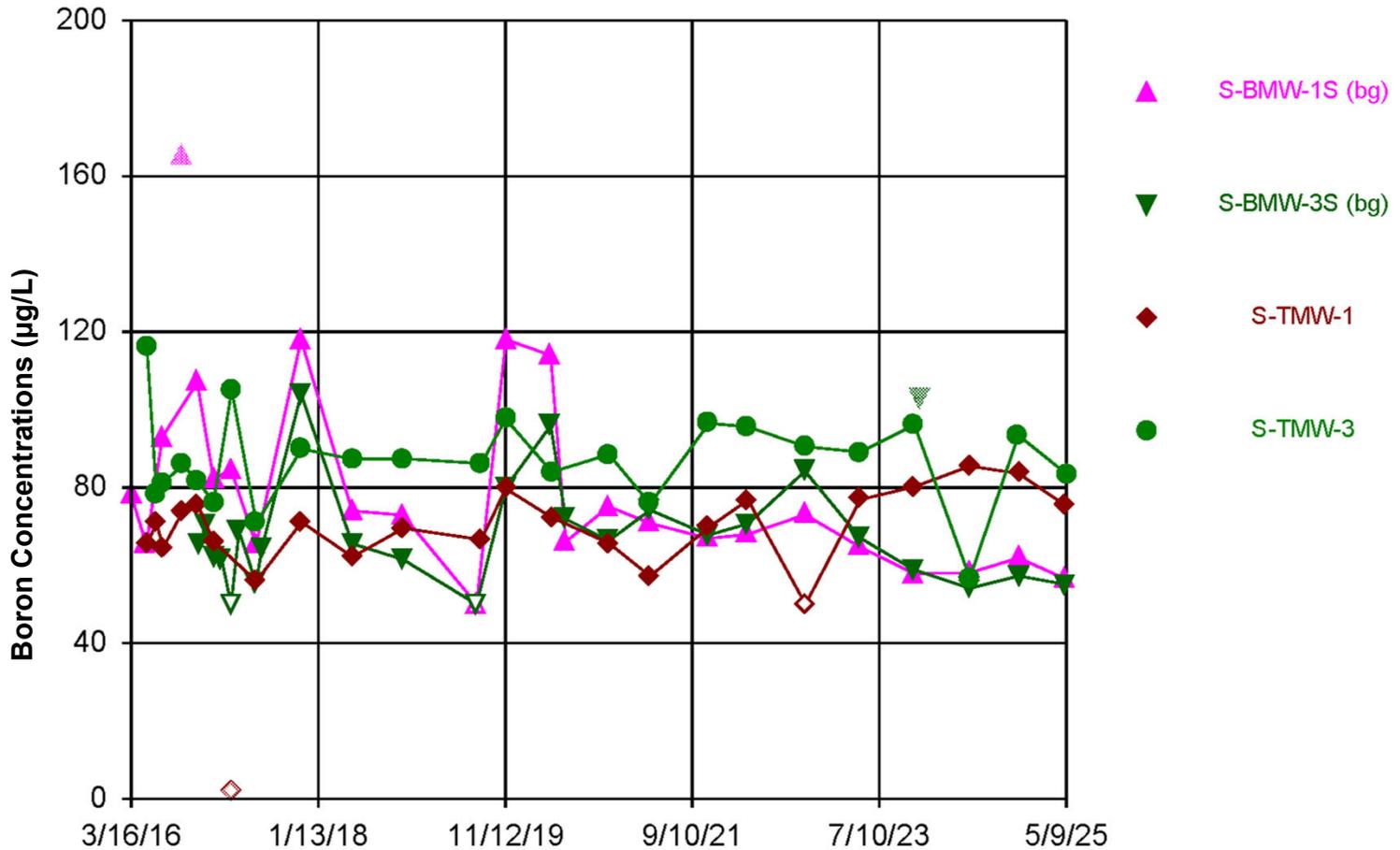
PROJECT  
 CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT  
 AMEREN MISSOURI  
 SIOUX ENERGY CENTER

	DESIGN	JSI	YYYY-MM-DD	2025-06-02
	PREPARED	GTM	PROJECT No.	23009-25
	REVIEW	JSI	<b>FIGURE 1</b>	
	APPROVED	MNH		

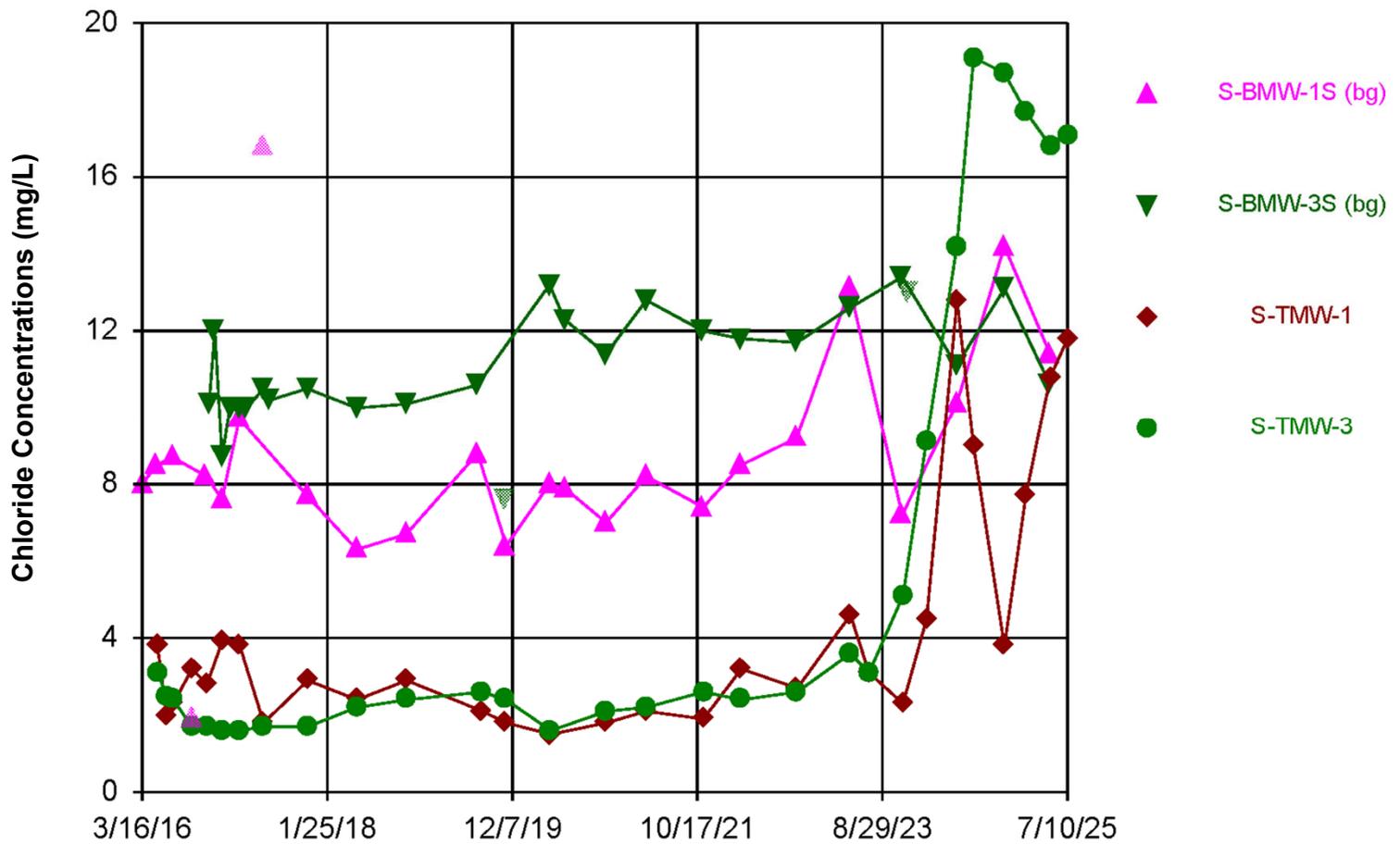
Path: C:\Users\CramMosey\Rocksmith Geoenvironmenting LLC\202007 - Ameren GW - Documents\400 - Drawings - Figures\4.3-SECC\4.3.2 - Production\2025\CD\Figure 1 - Well Locations - No Extrusion Locations.aprx

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



Notes  
 1) µg/L – Micrograms per liter.  
 2) Points not connected to lines are considered outliers as specified in the Updated Statistical Limit Technical Memorandum for the SCL4A.  
 3) Hollow symbols indicate non-detect values. Non-detects plotted as ½ the Method Detection Limit.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				 	TITLE <b>Timeseries Plot of Boron Concentrations</b>		
DRAWN JDQ	CHECKED GTM	REVIEWED JSI	DATE 2025-09-19		Rev No. NA	JOB NO. 23009-25	FIGURE <b>2</b>



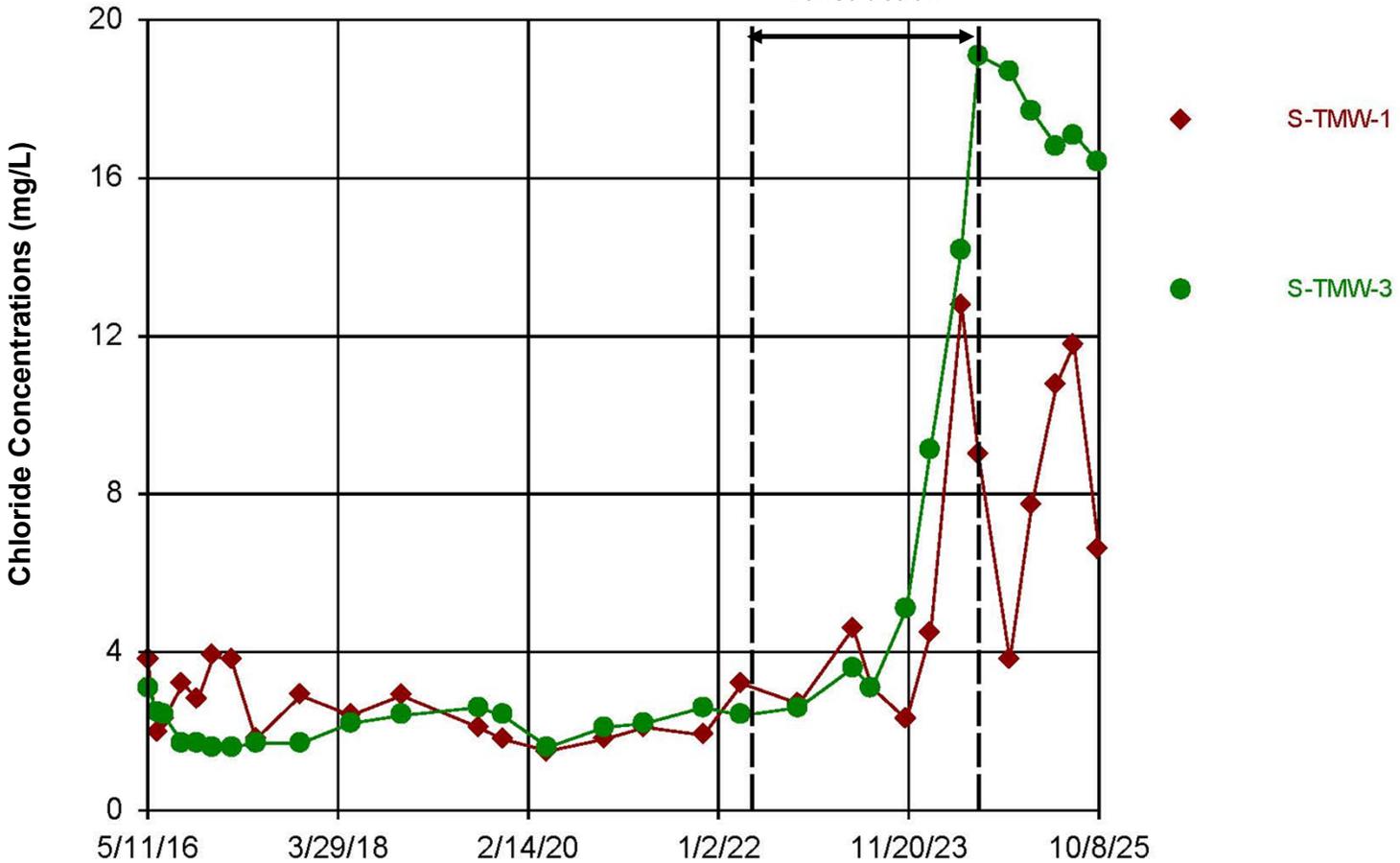
Notes  
 1) mg/L – Milligrams per liter.  
 2) Points not connected to lines are considered outliers as specified in the Updated Statistical Limit Technical Memorandum for the SCL4A.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JDQ	CHECKED GTM	REVIEWED JSI	DATE 2025-09-17	



TITLE <b>Time Series Plot of Chloride Concentrations</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>4</b>

**Surface Disturbances  
Associated with SCPD  
Construction**



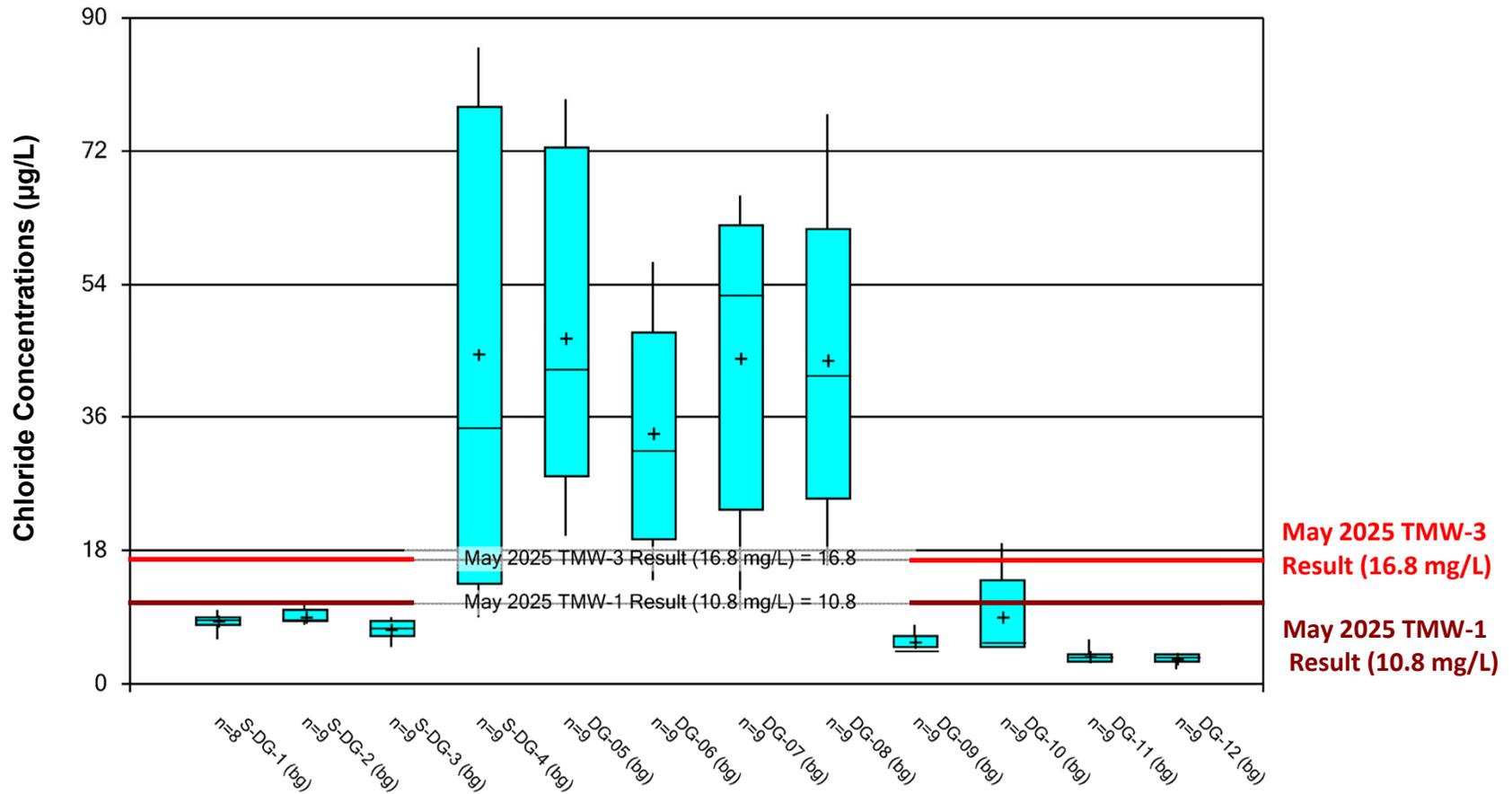
- Notes  
 1) mg/L – Milligrams per liter.  
 2) Surface disturbances associated with SCPD construction existed from mid-2022 to late 2024.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JTR	CHECKED GTM	REVIEWED JSI	DATE 2025-09-26	



TITLE <b>Time Series Plot of Chloride Concentrations with Corresponding Construction</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>5</b>

### Box & Whiskers Plot

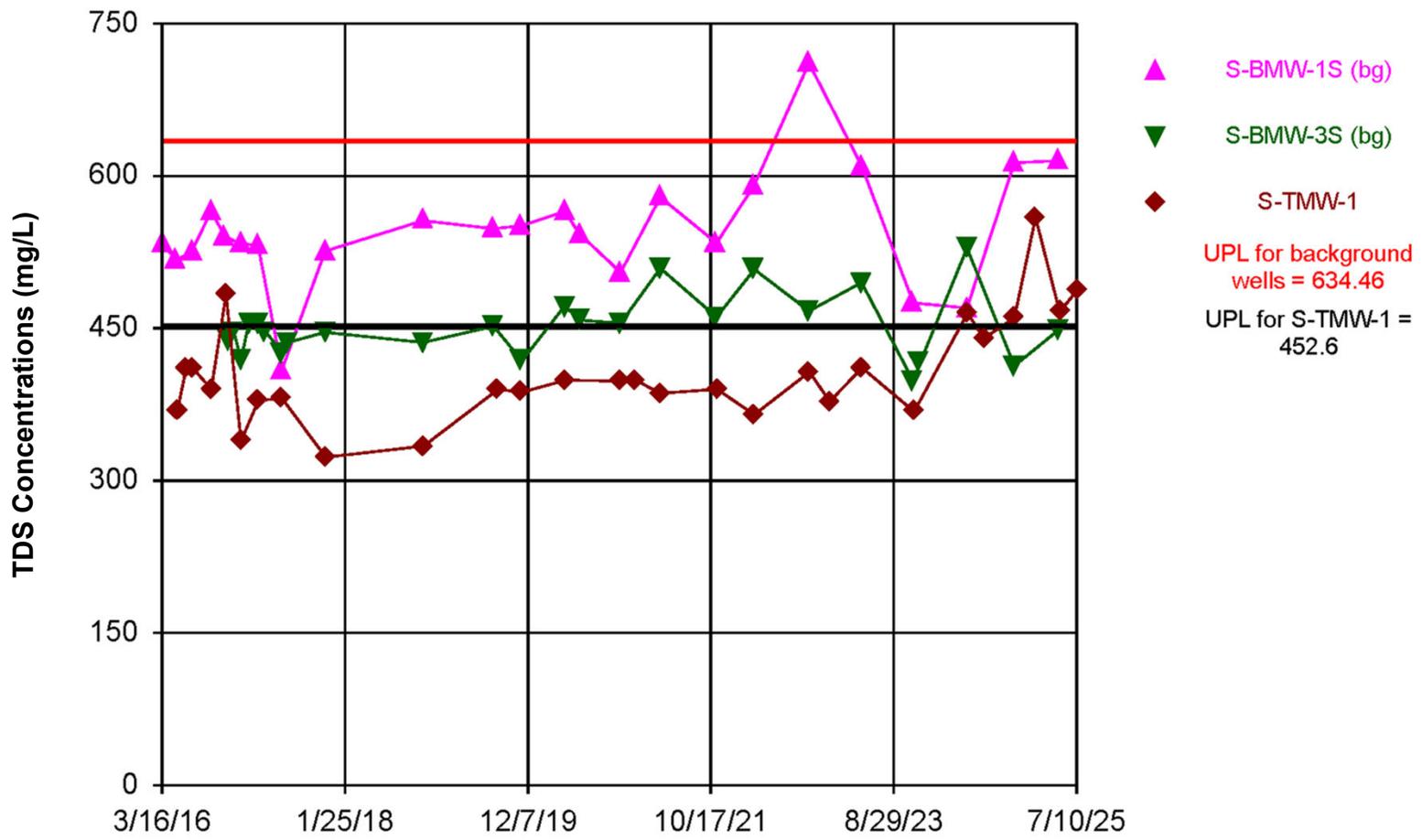


- Notes
- 1) µg/L – Micrograms per liter.
  - 2) UPL – Upper Prediction Limit.
  - 3) CCR – Coal Combustion Residuals.
  - 4) UWL – Utility Waste Landfill.

CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JDQ	CHECKED GTM	REVIEWED JSI	DATE 2025-09-19	

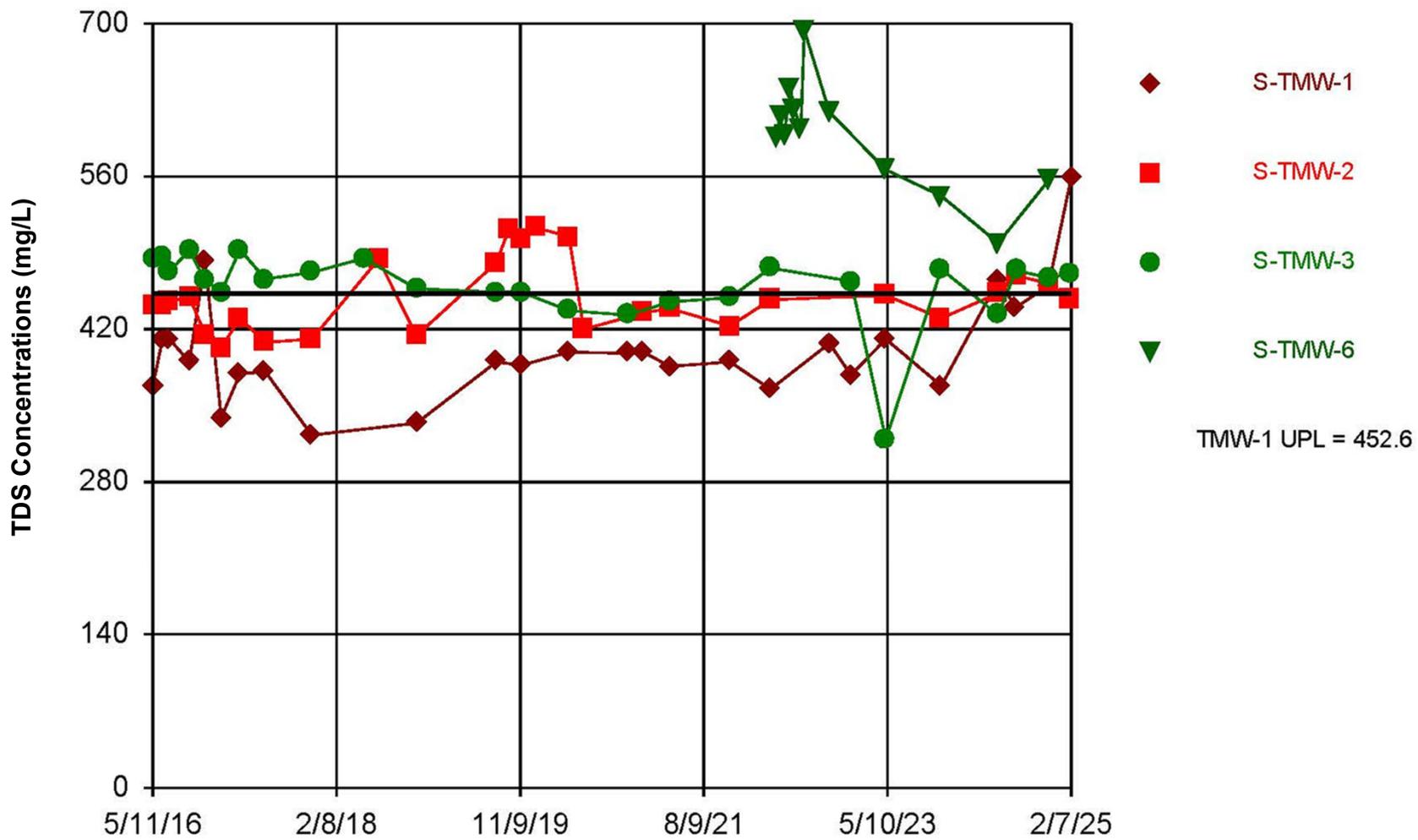


TITLE <b>Pre-CCR Chloride Plots – Downgradient UWL Monitoring Wells</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>6</b>



Notes  
 1) mg/L – Milligrams per liter.

CLIENT/PROJECT <b>AMEREN MISSOURI          SIOUX ENERGY CENTER</b>					TITLE <b>Time Series Plot of Total Dissolved Solids – TMW-1 and          Background Wells</b>		
DRAWN JDQ	CHECKED GTM	REVIEWED JSI	DATE 2025-09-19		Rev No. NA	JOB NO. 23009-25	FIGURE <b>7</b>

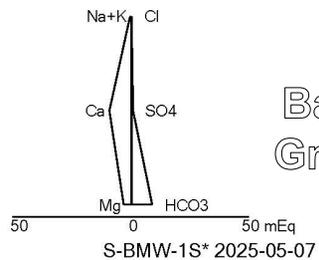


Notes  
1) mg/L – Milligrams per liter.

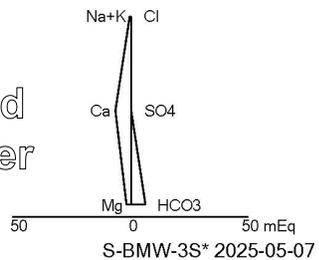
CLIENT/PROJECT <b>AMEREN MISSOURI SIOUX ENERGY CENTER</b>				
DRAWN JDQ	CHECKED GTM	REVIEWED JSI	DATE 2025-09-19	



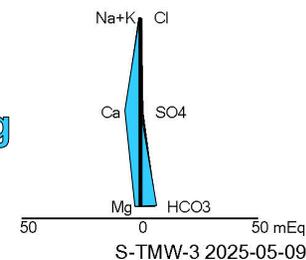
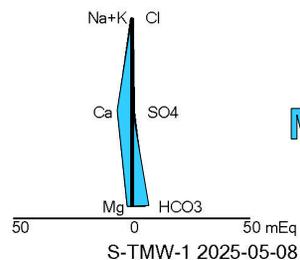
TITLE <b>Time Series Plot of Total Dissolved Solids at Monitoring Wells Near TMW-1</b>		
Rev No. NA	JOB NO. 23009-25	FIGURE <b>8</b>



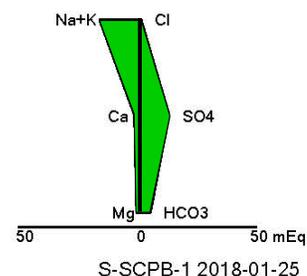
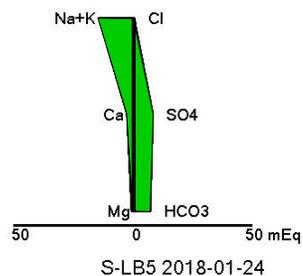
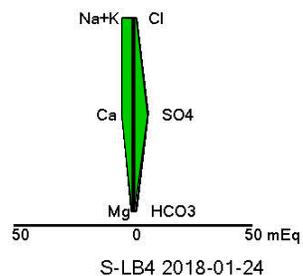
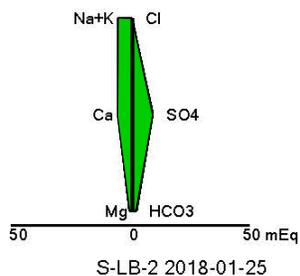
### Shallow Background Groundwater



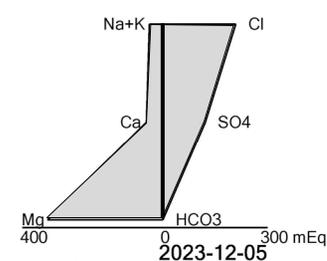
### SCL4A Monitoring Wells



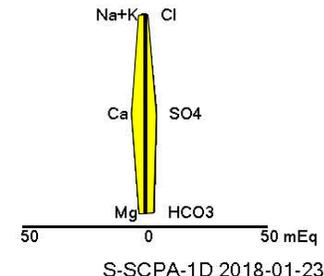
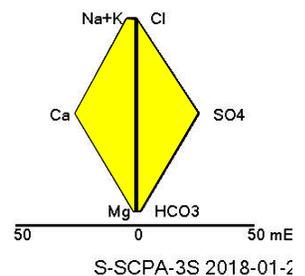
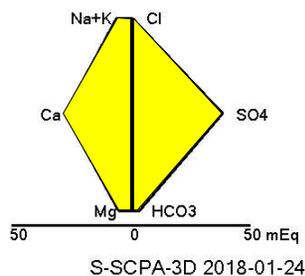
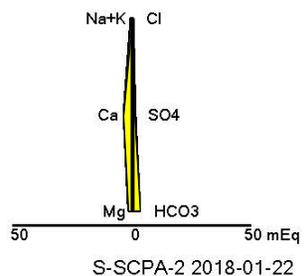
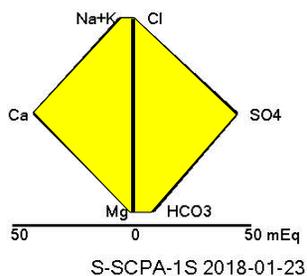
### SCPB (Fly Ash Pond) Porewater



### SCPD Leachate



### SCPA (Bottom Ash Pond) Porewater



#### Notes

- 1) Stiff diagrams generated using Sanitas Software.
- 2) mEq/l – milliequivalents per liter
- 3) SCPA and SCPB data from CCR Unit porewater sampling in 2018.
- 4) A singular FGD leachate sample was collected from the SCPD in 2023. Data presented at a different scale due to higher constituent magnitudes.

CLIENT/PROJECT  
AMEREN MISSOURI  
SIOUX ENERGY CENTER



TITLE  
**Stiff Diagrams of May 2025 Results, CCR Porewater, and FGD Leachate**

DRAWN  
JTR

CHECKED  
GTM

REVIEWED  
JSI

DATE  
2025-10-20

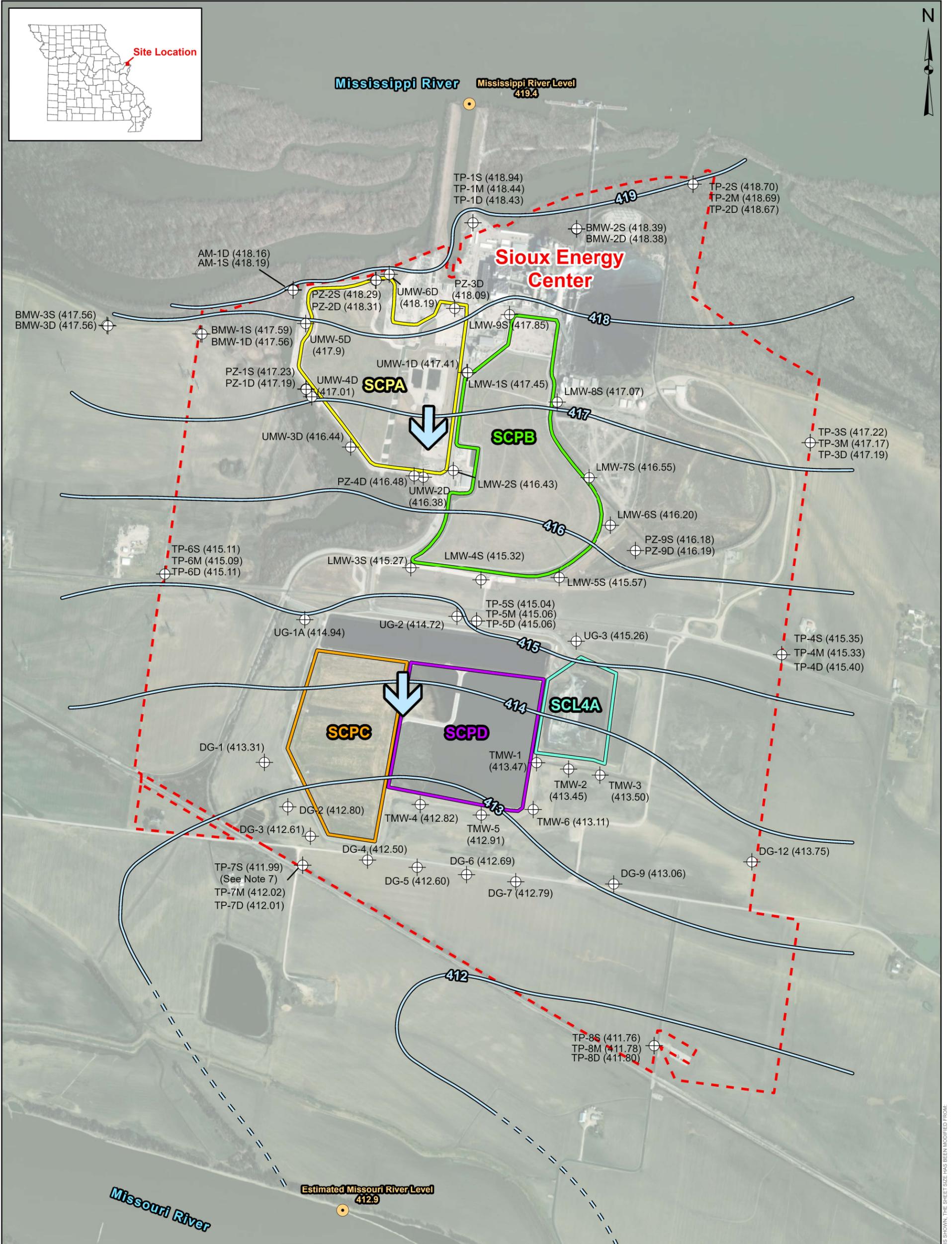
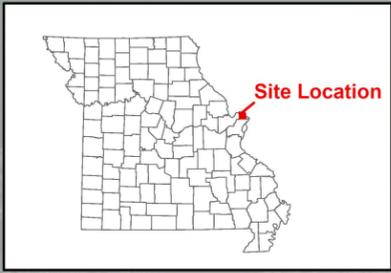
Rev No.  
NA

JOB NO.  
23009-25

FIGURE  
**9**

# Appendix D

## 2025 Potentiometric Surface Maps



**LEGEND**

**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**

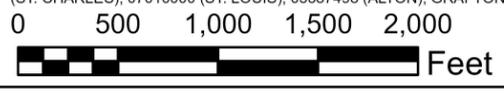
- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

**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 2401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



**TITLE**

**FEBRUARY 6, 2025 POTENTIOMETRIC SURFACE MAP**

**PROJECT**

CCR GROUNDWATER MONITORING PROGRAM

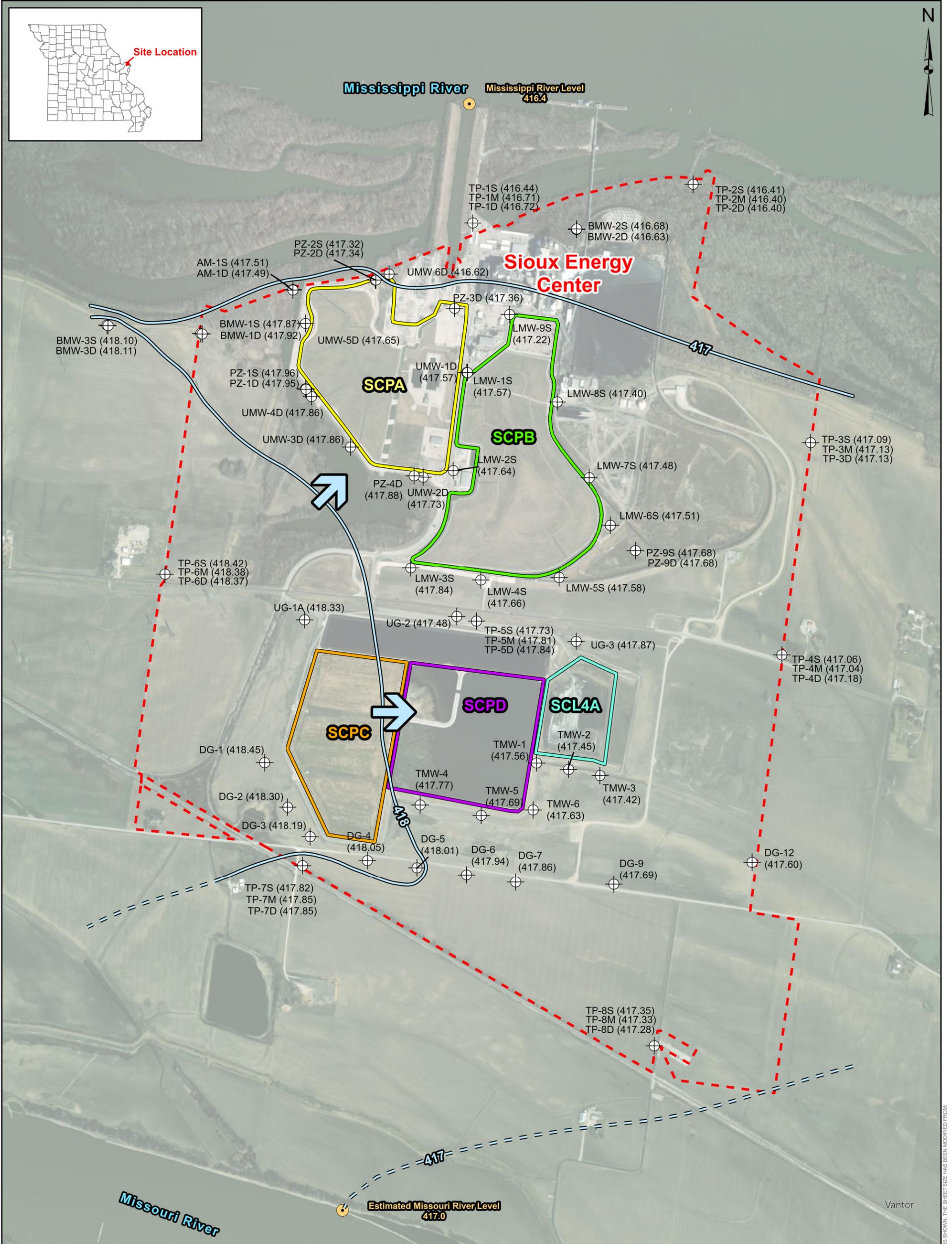
**CLIENT**

AMEREN MISSOURI  
SIOUX ENERGY CENTER

DESIGN	GTM	YYYY-MM-DD	2025-03-28
PREPARED	JTR	PROJECT No.	23009-25
REVIEW	JDQ	<b>FIGURE D1</b>	
APPROVED	MNH		



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 11in

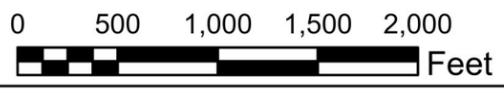


- LEGEND**
- - - Sioux Energy Center Property Boundary
  - CCR Units**
  - SCPA - Bottom Ash Surface Impoundment (Closed)
  - SCPB - Fly Ash Surface Impoundment (Closed)
  - SCPC - WFGD Surface Impoundment (Closed)
  - SCL4A - Dry CCR Disposal Area
  - SCPD - FGD Surface Impoundment

- Groundwater Elevation Contour (FT MSL)
- = = 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).



TITLE  
**MAY 7, 2025 POTENTIOMETRIC SURFACE MAP**

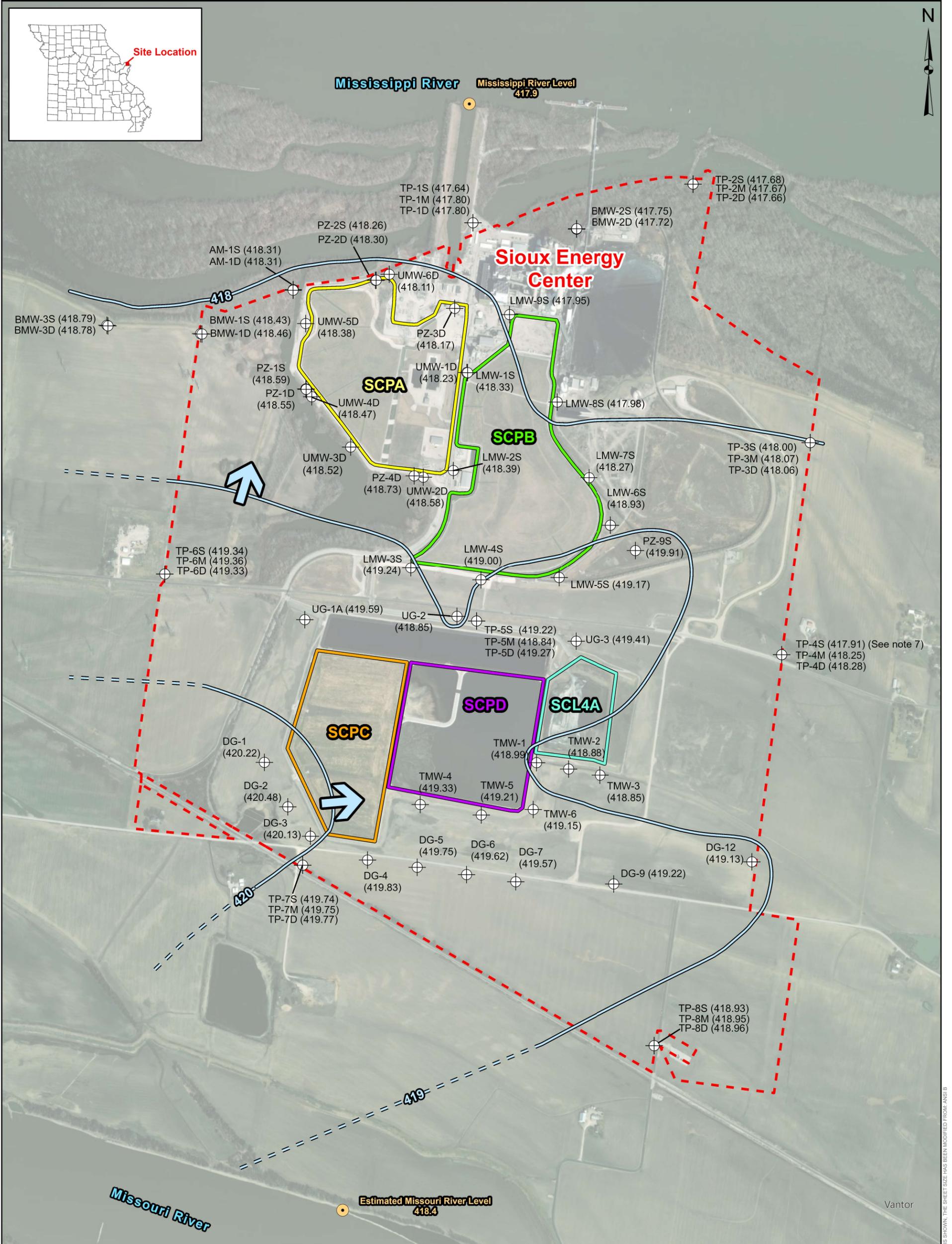
PROJECT  
CCR GROUNDWATER MONITORING PROGRAM

CLIENT  
AMEREN MISSOURI  
SIOUX ENERGY CENTER

DESIGN	GTM	YYYY-MM-DD	2025-05-19
PREPARED	JDQ	PROJECT No.	23009-25
REVIEW	JTR	<b>FIGURE D2</b>	
APPROVED	MNH		



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 11in



- LEGEND**
- - - Sioux Energy Center Property Boundary
  - CCR Units**
  - SCPA - Bottom Ash Surface Impoundment (Closed)
  - SCPB - Fly Ash Surface Impoundment (Closed)
  - SPCG - WFGD Surface Impoundment (Closed)
  - SCL4A - Dry CCR Disposal Area
  - SPCD - FGD Surface Impoundment

- 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.

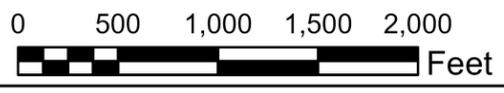
**REFERENCES**

- 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).

**TITLE**  
**JULY 9, 2025 POTENTIOMETRIC SURFACE MAP**

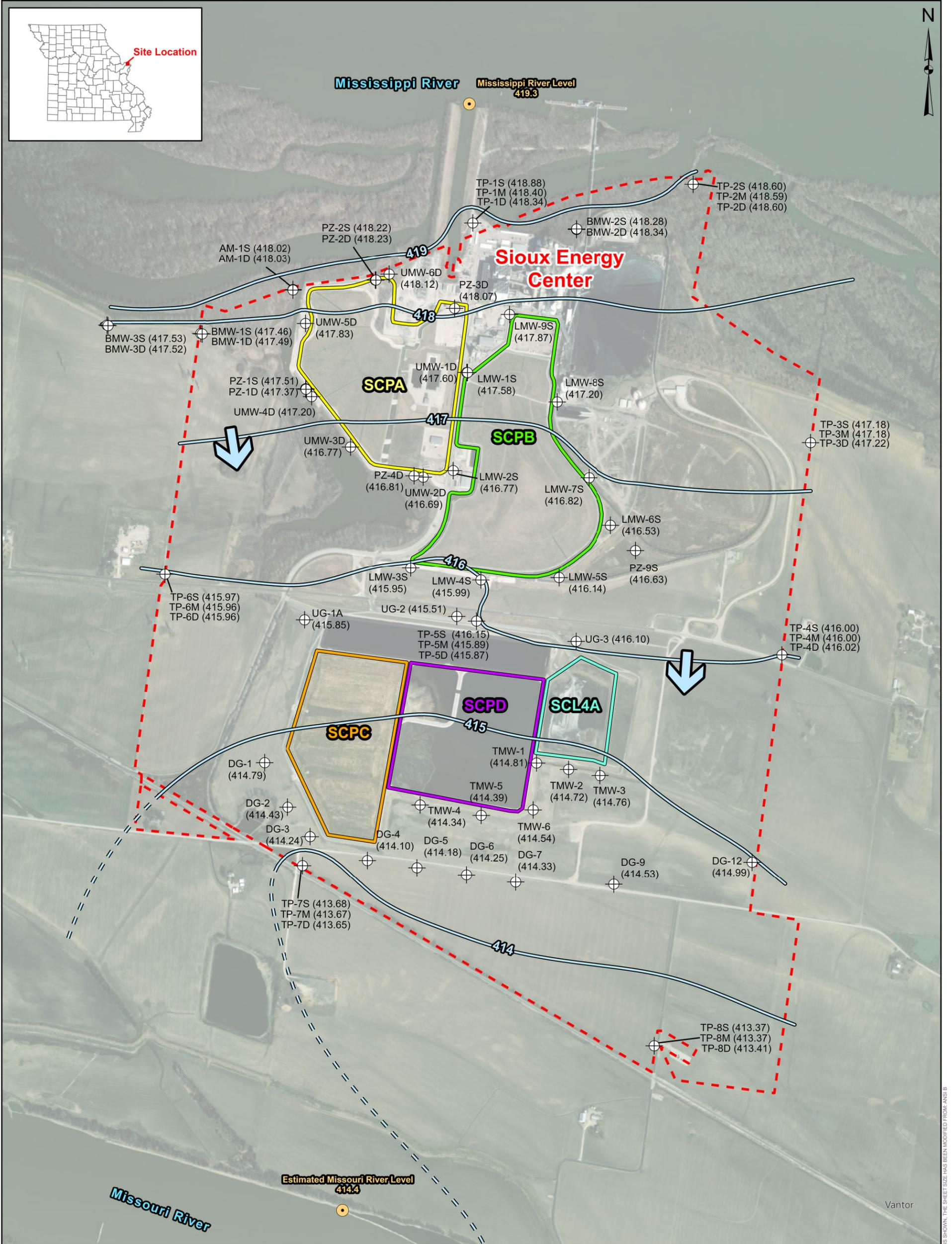
**PROJECT**  
 CCR GROUNDWATER MONITORING PROGRAM

**CLIENT**  
 AMEREN MISSOURI  
 SIOUX ENERGY CENTER



DESIGN	GTM	YYYY-MM-DD	2025-08-15
PREPARED	JDQ	PROJECT No.	23009-25
REVIEW	JTR	<b>FIGURE D3</b>	
APPROVED	MNH		

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

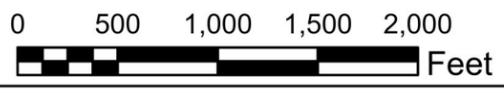


- LEGEND**
- - - Sioux Energy Center Property Boundary
  - CCR Units**
  - SCPA - Bottom Ash Surface Impoundment (Closed)
  - SCPB - Fly Ash Surface Impoundment (Closed)
  - SCPC - WFGD Surface Impoundment (Closed)
  - SCL4A - Dry CCR Disposal Area
  - SCPD - FGD Surface Impoundment

- Groundwater Elevation Contour (FT MSL)
- = = 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).



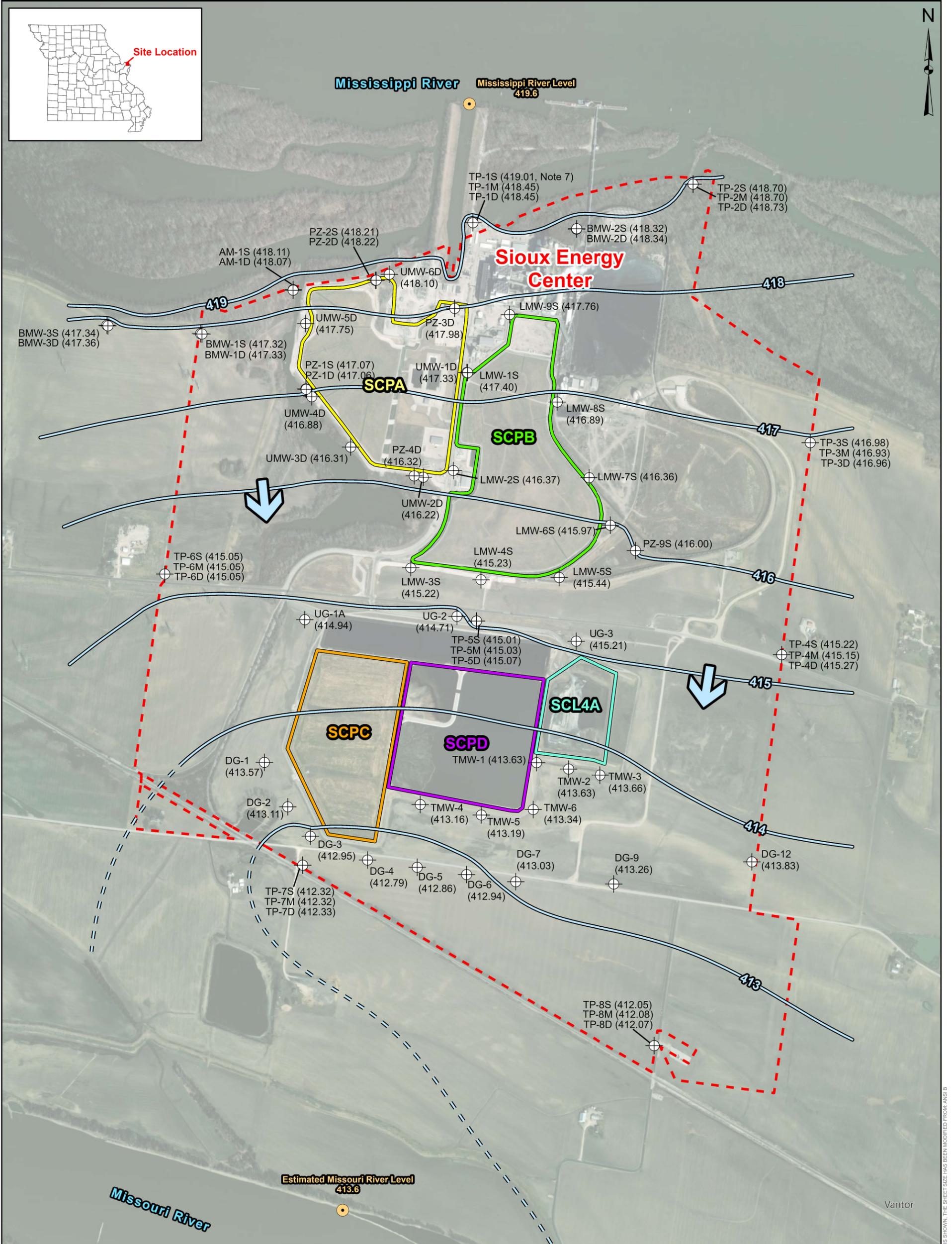
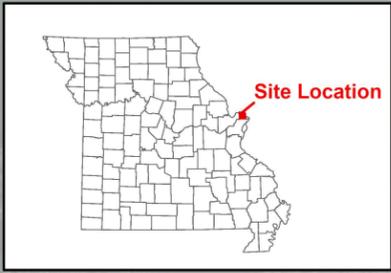
**TITLE**  
**OCTOBER 2, 2025 POTENTIOMETRIC SURFACE MAP**

**PROJECT**  
CCR GROUNDWATER MONITORING PROGRAM

**CLIENT**  
AMEREN MISSOURI  
SIOUX ENERGY CENTER

DESIGN	GTM	YYYY-MM-DD	2025-12-18
PREPARED	JDQ	PROJECT No.	23009-25
REVIEW	JTR	<b>FIGURE D4</b>	
APPROVED	MNH		

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



**LEGEND**

**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**

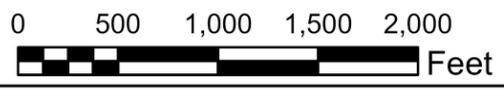
- River Gauge Location
- Monitoring Well or Piezometer
- Groundwater Flow Direction

**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.) 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).



**TITLE**

**DECEMBER 2, 2025 POTENTIOMETRIC SURFACE MAP**

**PROJECT**

CCR GROUNDWATER MONITORING PROGRAM

**CLIENT**

AMEREN MISSOURI  
SIOUX ENERGY CENTER

DESIGN	GTM	YYYY-MM-DD	2025-12-11
PREPARED	JDQ	PROJECT No.	23009-25
REVIEW	GTM	<b>FIGURE D5</b>	
APPROVED	MNH		



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B