REPORT

2024 Annual Groundwater Monitoring and Corrective Action Report

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

January 31, 2025

Project Number: 23009-24

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 SCPB 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 SCPB Coal Combustion Residuals (CCR) Surface Impoundment at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This Annual Report for the SCPB describes CCR Rule groundwater monitoring activities from January 1, 2024, through December 31, 2024, including verification results related to late 2023 sampling.

Throughout 2024, the SCPB 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. SSIs have been determined during each sampling event and a summary of the SSIs for the past year is provided in **Table 1**.

Table 1 - Summary of 2024 SCPB 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 2023 Sampling Event	Detection Monitoring, November 10-14, 2023	December 27, 2023	Appendix III, Major Cations and Anions	**Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Calcium:** LMW-2S, LMW-3S, LMW-5S, LMW-6S, LMW-7S, LMW-8S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-5S, LMW-7S, LMW-8S, LMW-9S **Sulfate:** LMW-1S, LMW-2S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **TDS:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S	March 26, 2024	June 24, 2024
	Verification Sampling, February 7, 2024	February 22, 2024	Detected Appendix III parameters (See Note 1)			
May 2024 Sampling Event	Detection Monitoring, May 28-31, 2024	July 9, 2024	Appendix III, Major Cations and Anions	**Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Calcium:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Sulfate:** LMW-1S, LMW-2S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **TDS:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S	October 7, 2024	January 3, 2025
	Verification Sampling July 29, 2024	August 12, 2024	Detected Appendix III parameters (See Note 1)			
November 2024 Sampling Event	Detection Monitoring, November 14-20, 2024	December 23, 2024	Appendix III, Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2025.		

Notes:
1) Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.
2) SSI – Statistically Significant Increase.
3) ASD – Alternative Source Demonstration.
4) TDS – Total Dissolved Solids.

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 each of these sampling events and are discussed further in this Annual Report.

There were no changes made to the monitoring system in 2024 with no new wells being installed or decommissioned. Capping and closure of the SCPB was fully completed in 2022 with closure certification on October 14, 2022. As outlined in §257.104 (Post-closure Care Requirements) of the CCR Rule, now that the SCPB CCR unit has been successfully closed, the monitoring system and programs must be maintained for at least 30 years after the completion of closure.

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1.0 INSTALLATION OR DECOMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCPB. The groundwater monitoring system consists of eleven groundwater monitoring wells screened in the uppermost aquifer and is displayed in **Figure 1** and as listed on **Table 2**, below. No new monitoring wells were installed or decommissioned in 2024 as a part of the CCR Rule monitoring program for the SCPB. For more information on the groundwater monitoring network, details are provided in the previous Annual Groundwater Monitoring Reports for the SCPB.

2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the SCPB CCR Unit in 2024. **Table 2** below provides a summary of the groundwater samples collected in 2024 including the number of samples, the date of sample collection, and the monitoring program for which the samples were collected.

Table 2 – Summary of Groundwater Sampling Dates

Sampling Event	Groundwater Monitoring Wells											Monitoring Program
	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S	
	Date of Sample Collection											
February 2024 Verification Sampling	-	-	-	2/7/2024	-	-	-	2/7/2024	-	-	2/7/2024	Detection
May 2024 Sampling	5/28/2024	5/28/2024	5/31/2024	5/28/2024	5/29/2024	5/29/2024	5/31/2024	5/31/2024	5/30/2024	5/30/2024	5/31/2024	Detection
July 2024 Verification Sampling	-	-	7/29/2024	-	-	7/29/2024	-	7/29/2024	-	-	-	Detection
November 2024 Sampling	11/20/2024	11/20/2024	11/14/2024	11/19/2024	11/19/2024	11/19/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024	Detection
Total Number of Samples Collected	2	2	3	3	2	3	2	4	2	2	3	NA

Notes:
1) Detection Monitoring events tested for Appendix III Parameters.
2) Verification Sampling events tested for Appendix III Parameters with initial exceedances that have not already been verified.
3) "-" No sample collected.
4) NA – Not applicable.

2.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 10-14, 2023. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2023 event were not completed until 2024 and are included in this report. New initial exceedances of some Appendix III analytes triggered a verification sampling event, which was completed February 7, 2024, and verified two SSIs. One initial exceedance was not confirmed. **Table 3** summarizes the results and statistical analysis of the November 2023 Detection Monitoring event. Laboratory analytical data from the February 2024 verification sampling event through the November 2024 sampling event are provided in **Appendix A**. Laboratory Analytical data for the November 2023 Detection Monitoring event are provided in the 2023 Groundwater Monitoring and Corrective Action Annual Report for the SCPB.

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 these SSIs and is provided in **Appendix B**. This ASD demonstrates that SSIs at the monitoring wells around the SCPB are not caused by the SCPB CCR Unit, and therefore, the SCPB CCR Unit remains in Detection Monitoring.

Detection Monitoring samples were collected May 28-31, 2024, and testing was completed for all Appendix III analytes, as well as major cations and anions. There were new initial exceedances of Appendix III analytes, therefore verification sampling was conducted July 29, 2024 and verified SSIs. **Table 4** summarizes the results and statistical analysis of the May 2024 Detection Monitoring event. Laboratory analytical data from this sampling event is included in **Appendix A**. Similar to previous results, SSIs in the monitoring well network are not caused by the SCPB CCR unit, as demonstrated by the May 2024 ASD provided in **Appendix C**.

A Detection Monitoring sampling event was completed November 14-20, 2024, and testing was completed for all Appendix III analytes, as well as major cations and anions. The statistical analysis to evaluate for SSIs in November 2024 data were not completed in 2024, and the results will be provided in the 2025 Annual Report. **Table 5** summarizes the results of the November 2024 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**.

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 these water bodies. 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 data since 2016. Results indicate that groundwater flow direction at the SEC is variable due to fluctuating river levels but has most often flowed from north to south. The overall net groundwater flow direction in the alluvial aquifer at the SEC was south-southeast in 2024 as a result of river levels in the Missouri and Mississippi Rivers. From 2016 through 2022, horizontal gradients ranged from 0.00006 to 0.001 feet/foot with an estimated net annual groundwater movement of approximately four feet per year in the prevailing downgradient direction. From July 2022 to February 2024, due to relatively low Missouri River levels, there was a more prevalent southward flow direction at a rate of approximately 43 feet per year. Based on water levels collected beginning in May 2024 throughout the rest of the year, groundwater flow varied north and south with a net eastward direction, averaging approximately 7 feet per year.

2.3 Sampling Issues

No notable sampling issues were encountered at the SCPB in 2024.

3.0 ACTIVITIES PLANNED FOR 2025

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2025. Statistical analysis of the November 2024 Detection Monitoring data will be completed in 2025 and will be included in the 2025 Annual Report. As outlined in the Statistical Analysis plan for the site, updates to the statistical limits should be completed once four to eight new sample results are available. After the first semiannual sampling event in 2025, there will be at least 4 new results for each Appendix III parameter. Therefore, background updates are planned to be completed in 2025.

Tables

Table 3
November 2023 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2023 Detection Monitoring Event													
DATE	NA	NA	11/10/2023	11/10/2023	11/14/2023	11/14/2023	11/13/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023
pH	SU	6.515-7.42	7.04	7.14	7.30	6.91	6.63	6.72	6.89	6.82	6.82	6.70	6.59
BORON, TOTAL	µg/L	118	57.9 J	58.9 J	1,100	9,270	214	7,590	12,100	14,700	3,690	4,970	1,080
CALCIUM, TOTAL	µg/L	174,465	136,000	114,000	116,000	180,000	207,000	139,000	214,000	235,000	204,000	233,000	203,000 J
CHLORIDE, TOTAL	mg/L	13.65	7.2	13.4	68.8 J	159 J	62.6 J	5.3 J	23.8 J	9.8 J	24.4 J	77.8 J	103 J
FLUORIDE, TOTAL	mg/L	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	61.1	46.9	12.3	103 J	221 J	37.0 J	51.8 J	644 J	586 J	416 J	459 J	205 J
TOTAL DISSOLVED SOLIDS	mg/L	608.2	475	398	566	962	751	689	1,290	1,290	980	1,210	1,050
February 2024 Verification Sampling Event													
DATE	NA	NA				2/7/2024				2/7/2024			2/7/2024
pH	SU	6.515-7.42											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	174,465				198,000							143,000
CHLORIDE, TOTAL	mg/L	13.65											
FLUORIDE, TOTAL	mg/L	0.46											
SULFATE, TOTAL	mg/L	61.1											
TOTAL DISSOLVED SOLIDS	mg/L	608.2								1,720			

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. 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.
4. NA - Not applicable.
5. Prediction Limits calculated using Sanitas Software.
6. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
7. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
8. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: GTM
Checked By: ANT
Reviewed By: MNH

Table 4
May 2024 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
May 2024 Detection Monitoring Event													
DATE	NA	NA	5/28/2024	5/28/2024	5/31/2024	5/28/2024	5/29/2024	5/29/2024	5/31/2024	5/31/2024	5/30/2024	5/30/2024	5/31/2024
pH	SU	6.515-7.42	6.86	6.95	7.33	7.03	6.63	6.76	6.91	6.95	6.97	6.78	6.63
BORON, TOTAL	µg/L	118	58.1 J	54.1 J	1,030	9,220	188	1,990	15,600	8,930	3,690	5,390	1,020
CALCIUM, TOTAL	µg/L	174,465	133,000	116,000	136,000	196,000	202,000	203,000	210,000	200,000	194,000	235,000	211,000
CHLORIDE, TOTAL	mg/L	13.65	10.1	11.1	139	167	97.4	21.5	10.8	23.9	35.4	113	52.7
FLUORIDE, TOTAL	mg/L	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22
SULFATE, TOTAL	mg/L	61.1	37.7	19.7	110	239	49.0	135	788	502	404	475 J	206
TOTAL DISSOLVED SOLIDS	mg/L	608.2	470	529	673	943	799	743	1,300	1,110	871	1,150	987
July 2024 Verification Sampling Event													
DATE	NA	NA			7/29/2024			7/29/2024		7/29/2024			
pH	SU	6.515-7.42											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	174,465						194,000					
CHLORIDE, TOTAL	mg/L	13.65						30.2		54.4 J			
FLUORIDE, TOTAL	mg/L	0.46											
SULFATE, TOTAL	mg/L	61.1						185					
TOTAL DISSOLVED SOLIDS	mg/L	608.2			648								

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. 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.
4. NA - Not applicable.
5. Prediction Limits calculated using Sanitas Software.
6. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
7. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: JTR
Checked By: JTA
Reviewed By: MNH

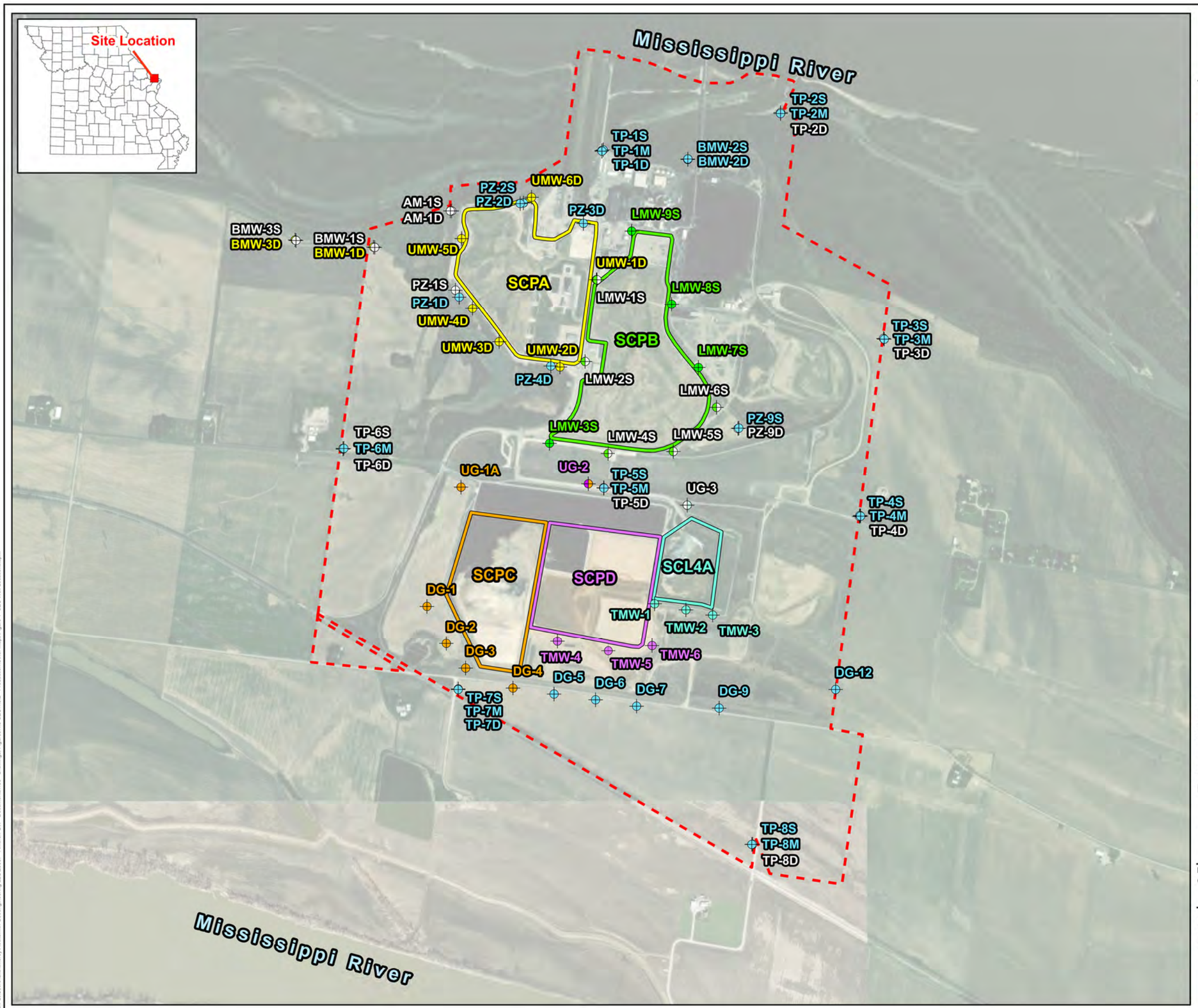
Table 5
November 2024 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2024 Detection Monitoring Event												
DATE	NA	11/20/2024	11/20/2024	11/14/2024	11/19/2024	11/19/2024	11/19/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024
pH	SU	6.57	6.72	7.26	6.97	6.58	6.83	6.65	6.50	6.75	6.30	6.24
BORON, TOTAL	µg/L	61.9 J	57.3 J	1,240	9,060	151	310	17,700	17,800	3,700	7,410	986
CALCIUM, TOTAL	µg/L	175,000	113,000	142,000	172,000	143,000	220,000	236,000	259,000	213,000	342,000 J	201,000
CHLORIDE, TOTAL	mg/L	14.2	13.1	175 J	137	13.3	3.3	10.6 J	6.4 J	31.6	205	39.2
FLUORIDE, TOTAL	mg/L	ND	ND	0.34 J	ND	0.32	ND	0.37 J	0.33 J	ND	0.48 J	0.21 J
SULFATE, TOTAL	mg/L	37.1	17.1	108 J	234	46.3	33.3	915 J	547 J	396	745	158
TOTAL DISSOLVED SOLIDS	mg/L	613	413	713	892 J	569	785 J	1,630	1,290	998	1,870	992

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. 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: JTR
Checked By: VAH
Reviewed By: MNH

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. Ameren Missouri Sioux Energy Center, Sioux Property Control Map, February 2011.

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

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	JSI	YYYY-MM-DD	2024-12-04
PREPARED	JSI	PROJECT No.	23009-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE 1

Path: C:\Users\GinaMMoney\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC4.3.2 - Production\Other Maps\Figure 1- SEC Well Locations.aprx

Appendix A
Laboratory Analytical Data

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

February 22, 2024

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

RE: Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on February 09, 2024. 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.

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

CERTIFICATIONS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 88-00679
Illinois Certification #: 2000302023-5
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212023-1
Oklahoma Certification #: 2022-057
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-23-17
Utah Certification #: KS000212022-12
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
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SAMPLE SUMMARY

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60446917001	**S-LMW-2S**	Water	02/07/24 11:08	02/09/24 05:30
60446917002	**S-LMW-6S**	Water	02/07/24 12:15	02/09/24 05:30
60446917003	**S-LMW-9S**	Water	02/07/24 13:17	02/09/24 05:30
60446917004	**S-LMW-DUP-1**	Water	02/07/24 00:00	02/09/24 05:30
60446917005	**S-LMW-FB-1**	Water	02/07/24 12:13	02/09/24 05:30

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60446917001	**S-LMW-2S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
60446917002	**S-LMW-6S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
60446917003	**S-LMW-9S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
60446917004	**S-LMW-DUP-1**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
60446917005	**S-LMW-FB-1**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Sample: S-LMW-2S **Lab ID: 60446917001** Collected: 02/07/24 11:08 Received: 02/09/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**198000**	ug/L	200	26.9	1	02/16/24 12:01	02/20/24 09:09	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1450**	mg/L	13.3	13.3	1		02/12/24 11:02		AB,D6

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Sample: S-LMW-6S **Lab ID: 60446917002** Collected: 02/07/24 12:15 Received: 02/09/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**255000**	ug/L	200	26.9	1	02/16/24 12:01	02/20/24 09:16	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1720**	mg/L	20.0	20.0	1		02/12/24 11:03		AB

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Sample: S-LMW-9S **Lab ID: 60446917003** Collected: 02/07/24 13:17 Received: 02/09/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**143000**	ug/L	200	26.9	1	02/16/24 12:01	02/20/24 09:18	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**868**	mg/L	13.3	13.3	1		02/12/24 11:03		AB

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Sample: S-LMW-DUP-1 **Lab ID: 60446917004** Collected: 02/07/24 00:00 Received: 02/09/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**138000**	ug/L	200	26.9	1	02/16/24 12:01	02/20/24 09:20	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**764**	mg/L	10.0	10.0	1		02/12/24 11:06		AB

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Sample: S-LMW-FB-1 **Lab ID: 60446917005** Collected: 02/07/24 12:13 Received: 02/09/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**<26.9**	ug/L	200	26.9	1	02/16/24 12:01	02/20/24 09:23	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**19.0**	mg/L	5.0	5.0	1		02/12/24 11:06		B

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

QC Batch: 883490
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60446917001, 60446917002, 60446917003, 60446917004, 60446917005

METHOD BLANK: 3497213 Matrix: Water
Associated Lab Samples: 60446917001, 60446917002, 60446917003, 60446917004, 60446917005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	<26.9	200	26.9	02/20/24 09:05	

LABORATORY CONTROL SAMPLE: 3497214

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497215 3497216

Parameter	Units	60446917001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	198000	10000	10000	205000	206000	73	79	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497217 3497218

Parameter	Units	60446937003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	160000	10000	10000	172000	169000	117	90	70-130	2	20	

MATRIX SPIKE SAMPLE: 3497219

Parameter	Units	60446937005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L			10400			

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

QC Batch: 882943 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60446917001, 60446917002, 60446917003, 60446917004, 60446917005

METHOD BLANK: 3495313 Matrix: Water
Associated Lab Samples: 60446917001, 60446917002, 60446917003, 60446917004, 60446917005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	31.5	5.0	5.0	02/12/24 10:58	AB,MW

LABORATORY CONTROL SAMPLE: 3495314

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1080	108	80-120	AB

SAMPLE DUPLICATE: 3495315

Parameter	Units	60446838002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	288	298	3	10	AB

SAMPLE DUPLICATE: 3495316

Parameter	Units	60446917001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1450	1140	23	10	AB,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

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

QUALIFIERS

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

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

AB	Analyte was detected in an associated instrument blank.
B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
MW	Due to matrix interference, achieving a constant weight is not possible.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB-VERIFICATION SAMP.
Pace Project No.: 60446917

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60446917001	**S-LMW-2S**	EPA 200.7	883490	EPA 200.7	883506
60446917002	**S-LMW-6S**	EPA 200.7	883490	EPA 200.7	883506
60446917003	**S-LMW-9S**	EPA 200.7	883490	EPA 200.7	883506
60446917004	**S-LMW-DUP-1**	EPA 200.7	883490	EPA 200.7	883506
60446917005	**S-LMW-FB-1**	EPA 200.7	883490	EPA 200.7	883506
60446917001	**S-LMW-2S**	SM 2540C	882943		
60446917002	**S-LMW-6S**	SM 2540C	882943		
60446917003	**S-LMW-9S**	SM 2540C	882943		
60446917004	**S-LMW-DUP-1**	SM 2540C	882943		
60446917005	**S-LMW-FB-1**	SM 2540C	882943		

WO# : 60446917

60446917

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

Client Name: Rocksmith Geoeng

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

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

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

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

Thermometer Used: T298 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.2/1.5 **Corr. Factor** -0.3 **Corrected** 0.9/1.2

Date and initials of person examining contents: PW 2/9/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 67187	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Mark Haddock
Copy To:	Jeffery Ingram, Grant Morey
Purchase Order No.:	COC #6
Project Name:	Ameren SCPB - Verification Sampling
Project Number:	COC#6

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: Calcium	Total Dissolved Solids	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-2S	WT	G			2-7-24	1108		2	1		1						✓	✓		60446917
2	S-LMW-6S	WT	G				1215		2	1		1						✓	✓		
3	S-LMW-9S	WT	G				1317		2	1		1						✓	✓		
4	S-LMW-DUP-1	WT	G				—		2	1		1						✓	✓		
5	S-LMW-FB-1	WT	G				1213		2	1		1						✓	✓		
6	S-LMW-MS-1	WT	G				1108		2	1		1						✓	✓		Collected @ S-LMW-2S
7	S-LMW-MSD-1	WT	G				1108		2	1		1						✓	✓		"
8		WT	G																		
9		WT	G																		
10		WT	G																		
11		WT	G																		
12		WT	G																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Morey/Rocksmith	2-8-24	1340	[signature] PACE	2/9	0530	1-2	Y	Y	Y
							0-9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/08/24

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

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

Client: Rocksmith Geo Eng

Profile # 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	RP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																				3		3									
2	↓																				1		1									
3																					↓		↓									
4																																
5	↓																															
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

Plastic	
BP1C	1L NAOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2C	500mL NAOH plastic
BP2N	500mL HNO3 plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3F	250mL HNO3 plastic - field filtered
BP3N	250mL HNO3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, Zn Acetate
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic
WPDU	16oz unpresserved plstic

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

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

Work Order Number: 60446917

Memorandum

March 18, 2024

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23009
CC:	Mark Haddock, Jeffrey Ingram		
From:	Grant Morey	**Email:**	Grant.Morey@Rocksmithgeo.com
RE:	**Data Validation Summary, Sioux Energy Center – SCPB Verification – Data Package 60446917**		

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 duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a field or method blank criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPB Verification
Project Number: 23009
Reviewer: G. Morey
Validation Date: 3/18/2024

Laboratory: Pace Analytical
SDG #: 60446917
Analytical Method (type and no.): EPA 200.7 (Calcium); SM 2540C (Total Dissolved Solids)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-LMW-2S, S-LMW-6S, S-LMW-9S, S-LMW-DUP-1, S-LMW-FB-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			2/7/2024
b) Sampling team indicated?	x			ANT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	No lab narrative.

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			S-LMW-DUP-1 @ S-LMW-9S
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			See Notes
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

Blanks;

3495313: TDS detected in method/instrument blank (31.5). Associated with all TDS samples. Most results > RL and 10x blank, field blank result < 10x method blank and qualified as estimate.

S-LMW-FB-1 @ S-LMW-6S: TDS (19.0). Result > 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Duplicates:

S-LMW-DUP-1 @ S-LMW-9S: field duplicate RPD exceeds control limits for TDS (13%), results qualified as estimates.

3495316: Lab duplicate RPD (23%) exceeds control limit for TDS, associated with sample -001, result qualified as estimate.

Lab duplicate max RPD: 10%: TDS

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-FB-1	TDS	19.0	J	Detected in method blank, result < 10x blank
S-LMW-DUP-1	"	764	J	Field duplicate RPD exceeds control limit
S-LMW-9S	"	868	J	"
S-LMW-2S	"	1450	J	Lab duplicate RPD exceeds control limit

Signature: Grant Morey Date: 3/18/2024

Pace Analytical Services, LLC
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(913)599-5665

July 09, 2024

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

RE: Project: AMEREN SCPB
Pace Project No.: 60453815

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between May 30, 2024 and June 01, 2024. 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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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CERTIFICATIONS

Project: AMEREN SCPB
Pace Project No.: 60453815

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 SCPB
Pace Project No.: 60453815

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60453815001	**S-LMW-3S**	Water	05/29/24 12:55	05/30/24 05:35
60453815002	**S-LMW-DUP-1**	Water	05/29/24 00:00	05/30/24 05:35
60453815003	**S-LMW-7S**	Water	05/30/24 17:10	06/01/24 07:05
60453815004	**S-LMW-8S**	Water	05/30/24 17:03	06/01/24 07:05
60453815005	**S-LMW-9S**	Water	05/31/24 12:39	06/01/24 07:05
60453815006	**S-LMW-DUP-2**	Water	05/30/24 00:00	06/01/24 07:05
60453815007	**S-LMW-FB-1**	Water	05/30/24 17:04	06/01/24 07:05
60453815008	**S-LMW-FB-2**	Water	05/31/24 12:55	06/01/24 07:05
60453812014	**S-LMW-1S**	Water	05/31/24 13:35	06/01/24 07:05
60453812003	**S-LMW-2S**	Water	05/29/24 14:05	05/30/24 05:35
60453812004	**S-LMW-4S**	Water	05/29/24 11:30	05/30/24 05:35
60453812015	**S-LMW-5S**	Water	05/31/24 12:58	06/01/24 07:05
60453812016	**S-LMW-6S**	Water	05/31/24 12:06	06/01/24 07:05
60453812001	**S-BMW-1S**	Water	05/28/24 11:35	05/30/24 05:35
60453812002	**S-BMW-3S**	Water	05/28/24 14:20	05/30/24 05:35

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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60453815

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60453815001	**S-LMW-3S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815002	**S-LMW-DUP-1**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815003	**S-LMW-7S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815004	**S-LMW-8S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815005	**S-LMW-9S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815006	**S-LMW-DUP-2**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815007	**S-LMW-FB-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453815008	**S-LMW-FB-2**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812014	**S-LMW-1S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812003	**S-LMW-2S**	EPA 200.7	JXD	7	PASI-K

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60453815

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812004	**S-LMW-4S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812015	**S-LMW-5S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812016	**S-LMW-6S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812001	**S-BMW-1S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453812002	**S-BMW-3S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-3S **Lab ID: 60453815001** Collected: 05/29/24 12:55 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**188**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:49	7440-42-8	
Calcium	**202000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:49	7440-70-2	
Iron	**20.9J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:49	7439-89-6	
Magnesium	**41600**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:49	7439-95-4	
Manganese	**16.2**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:49	7439-96-5	
Potassium	**5640**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:49	7440-09-7	
Sodium	**37200**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:49	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**590**	mg/L	20.0	10.5	1		06/06/24 14:34		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**799**	mg/L	13.3	13.3	1		06/04/24 12:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**97.4**	mg/L	20.0	10.5	20		06/13/24 03:46	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/13/24 03:29	16984-48-8	N2
Sulfate	**49.0**	mg/L	20.0	11.0	20		06/13/24 03:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-DUP-1 **Lab ID: 60453815002** Collected: 05/29/24 00:00 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**188**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:51	7440-42-8	
Calcium	**201000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:51	7440-70-2	
Iron	**19.2J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:51	7439-89-6	
Magnesium	**41500**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:51	7439-95-4	
Manganese	**16.8**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:51	7439-96-5	
Potassium	**5530**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:51	7440-09-7	
Sodium	**36800**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**582**	mg/L	20.0	10.5	1		06/06/24 14:41		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**760**	mg/L	13.3	13.3	1		06/04/24 12:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**90.5**	mg/L	20.0	10.5	20		06/13/24 04:56	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/13/24 04:04	16984-48-8	N2
Sulfate	**48.0**	mg/L	20.0	11.0	20		06/13/24 04:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-7S **Lab ID: 60453815003** Collected: 05/30/24 17:10 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3690**	ug/L	100	6.4	1	06/06/24 15:48	06/11/24 09:50	7440-42-8	
Calcium	**194000**	ug/L	200	26.9	1	06/06/24 15:48	06/11/24 09:50	7440-70-2	
Iron	**21.3J**	ug/L	50.0	9.1	1	06/06/24 15:48	06/11/24 09:50	7439-89-6	B
Magnesium	**54100**	ug/L	50.0	20.1	1	06/06/24 15:48	06/11/24 09:50	7439-95-4	
Manganese	**724**	ug/L	5.0	0.39	1	06/06/24 15:48	06/11/24 09:50	7439-96-5	
Potassium	**4520**	ug/L	500	69.7	1	06/06/24 15:48	06/11/24 09:50	7440-09-7	
Sodium	**23400**	ug/L	500	115	1	06/06/24 15:48	06/11/24 09:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**380**	mg/L	20.0	10.5	1		06/06/24 14:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**871**	mg/L	13.3	13.3	1		06/05/24 09:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**35.4**	mg/L	20.0	10.5	20		06/13/24 04:30	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/13/24 04:15	16984-48-8	N2
Sulfate	**404**	mg/L	50.0	27.5	50		06/13/24 11:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-8S **Lab ID: 60453815004** Collected: 05/30/24 17:03 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**5390**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:11	7440-42-8	
Calcium	**235000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:11	7440-70-2	M1
Iron	**<9.1**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:11	7439-89-6	
Magnesium	**58100**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:11	7439-95-4	
Manganese	**1160**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:11	7439-96-5	
Potassium	**5340**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:11	7440-09-7	
Sodium	**68200**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**370**	mg/L	20.0	10.5	1		06/06/24 14:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1150**	mg/L	20.0	20.0	1		06/05/24 09:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**113**	mg/L	50.0	26.4	50		06/14/24 15:38	16887-00-6	M1
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/14/24 14:43	16984-48-8	M1,N2
Sulfate	**475**	mg/L	50.0	27.5	50		06/14/24 15:38	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-9S **Lab ID: 60453815005** Collected: 05/31/24 12:39 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1020**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:15	7440-42-8	
Calcium	**211000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:15	7440-70-2	
Iron	**13.9J**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:15	7439-89-6	
Magnesium	**71500**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:15	7439-95-4	
Manganese	**81.9**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:15	7439-96-5	
Potassium	**4750**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:15	7440-09-7	
Sodium	**31700**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:15	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**711**	mg/L	20.0	10.5	1		06/06/24 15:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**987**	mg/L	13.3	13.3	1		06/05/24 12:23		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**52.7**	mg/L	20.0	10.5	20		06/13/24 05:00	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.12	1		06/13/24 04:45	16984-48-8	N2
Sulfate	**206**	mg/L	20.0	11.0	20		06/13/24 05:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-DUP-2 **Lab ID: 60453815006** Collected: 05/30/24 00:00 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3610**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:17	7440-42-8	
Calcium	**191000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:17	7440-70-2	
Iron	**15.3J**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:17	7439-89-6	
Magnesium	**53000**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:17	7439-95-4	
Manganese	**723**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:17	7439-96-5	
Potassium	**4390**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:17	7440-09-7	
Sodium	**23300**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:17	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**367**	mg/L	20.0	10.5	1		06/06/24 15:24		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**848**	mg/L	13.3	13.3	1		06/05/24 09:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**35.4**	mg/L	20.0	10.5	20		06/13/24 05:35	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/13/24 05:17	16984-48-8	N2
Sulfate	**364**	mg/L	50.0	27.5	50		06/13/24 12:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-FB-1 **Lab ID: 60453815007** Collected: 05/30/24 17:04 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<6.4**	ug/L	100	6.4	1	06/11/24 08:32	06/12/24 16:12	7440-42-8	
Calcium	**32.8J**	ug/L	200	26.9	1	06/11/24 08:32	06/12/24 16:12	7440-70-2	B
Iron	**<9.1**	ug/L	50.0	9.1	1	06/11/24 08:32	06/12/24 16:12	7439-89-6	
Magnesium	**<20.1**	ug/L	50.0	20.1	1	06/11/24 08:32	06/12/24 16:12	7439-95-4	
Manganese	**<0.39**	ug/L	5.0	0.39	1	06/11/24 08:32	06/12/24 16:12	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	06/11/24 08:32	06/12/24 16:12	7440-09-7	
Sodium	**<115**	ug/L	500	115	1	06/11/24 08:32	06/12/24 16:12	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		06/06/24 15:30		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**5.5**	mg/L	5.0	5.0	1		06/05/24 10:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		06/13/24 05:53	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/13/24 05:53	16984-48-8	N2
Sulfate	**<0.55**	mg/L	1.0	0.55	1		06/13/24 05:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-FB-2 **Lab ID: 60453815008** Collected: 05/31/24 12:55 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**6.7J**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:19	7440-42-8	
Calcium	**31.7J**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:19	7440-70-2	B
Iron	**<9.1**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:19	7439-89-6	
Magnesium	**<20.1**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:19	7439-95-4	
Manganese	**<0.39**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:19	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:19	7440-09-7	
Sodium	**258J**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:19	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		06/06/24 15:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		06/05/24 12:23		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		06/14/24 17:02	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/14/24 17:02	16984-48-8	N2
Sulfate	**<0.55**	mg/L	1.0	0.55	1		06/14/24 17:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-1S **Lab ID: 60453812014** Collected: 05/31/24 13:35 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1030**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:25	7440-42-8	
Calcium	**136000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:25	7440-70-2	
Iron	**15.1J**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:25	7439-89-6	
Magnesium	**32500**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:25	7439-95-4	
Manganese	**117**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:25	7439-96-5	
Potassium	**8210**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:25	7440-09-7	
Sodium	**39100**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:25	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**304**	mg/L	20.0	10.5	1		06/06/24 13:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**673**	mg/L	13.3	13.3	1		06/05/24 12:23		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**139**	mg/L	20.0	10.5	20		06/14/24 17:29	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/14/24 17:15	16984-48-8	N2
Sulfate	**110**	mg/L	20.0	11.0	20		06/14/24 17:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-2S **Lab ID: 60453812003** Collected: 05/29/24 14:05 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**9220**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:13	7440-42-8	
Calcium	**196000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:13	7440-70-2	
Iron	**33.0J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:13	7439-89-6	
Magnesium	**34200**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:13	7439-95-4	
Manganese	**390**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:13	7439-96-5	
Potassium	**7410**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:13	7440-09-7	
Sodium	**81100**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**389**	mg/L	20.0	10.5	1		06/05/24 17:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**943**	mg/L	13.3	13.3	1		06/04/24 12:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**167**	mg/L	20.0	10.5	20		06/12/24 19:57	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 19:40	16984-48-8	N2
Sulfate	**239**	mg/L	20.0	11.0	20		06/12/24 19:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-4S **Lab ID: 60453812004** Collected: 05/29/24 11:30 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1990**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:20	7440-42-8	
Calcium	**203000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:20	7440-70-2	
Iron	**12.7J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:20	7439-89-6	
Magnesium	**42600**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:20	7439-95-4	
Manganese	**87.6**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:20	7439-96-5	
Potassium	**4740**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:20	7440-09-7	
Sodium	**14500**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:20	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**577**	mg/L	20.0	10.5	1		06/05/24 17:59		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**743**	mg/L	13.3	13.3	1		06/04/24 12:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.5**	mg/L	10.0	5.3	10		06/12/24 20:32	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 20:14	16984-48-8	N2
Sulfate	**135**	mg/L	10.0	5.5	10		06/12/24 20:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-5S **Lab ID: 60453812015** Collected: 05/31/24 12:58 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**15600**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:27	7440-42-8	
Calcium	**210000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:27	7440-70-2	
Iron	**81.6**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:27	7439-89-6	
Magnesium	**38300**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:27	7439-95-4	
Manganese	**1530**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:27	7439-96-5	
Potassium	**4100**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:27	7440-09-7	
Sodium	**176000**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:27	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**346**	mg/L	20.0	10.5	1		06/06/24 13:25		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1300**	mg/L	20.0	20.0	1		06/06/24 09:27		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**10.8**	mg/L	1.0	0.53	1		06/14/24 17:43	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/14/24 17:43	16984-48-8	N2
Sulfate	**788**	mg/L	100	55.0	100		06/17/24 17:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-LMW-6S **Lab ID: 60453812016** Collected: 05/31/24 12:06 Received: 06/01/24 07:05 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**8930**	ug/L	100	6.4	1	06/11/24 09:35	06/12/24 11:28	7440-42-8	
Calcium	**200000**	ug/L	200	26.9	1	06/11/24 09:35	06/12/24 11:28	7440-70-2	
Iron	**66.2**	ug/L	50.0	9.1	1	06/11/24 09:35	06/12/24 11:28	7439-89-6	
Magnesium	**50400**	ug/L	50.0	20.1	1	06/11/24 09:35	06/12/24 11:28	7439-95-4	
Manganese	**315**	ug/L	5.0	0.39	1	06/11/24 09:35	06/12/24 11:28	7439-96-5	
Potassium	**3740**	ug/L	500	69.7	1	06/11/24 09:35	06/12/24 11:28	7440-09-7	
Sodium	**45200**	ug/L	500	115	1	06/11/24 09:35	06/12/24 11:28	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**322**	mg/L	20.0	10.5	1		06/06/24 13:31		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1110**	mg/L	13.3	13.3	1		06/06/24 09:27		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**23.9**	mg/L	2.0	1.1	2		06/17/24 17:52	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/14/24 18:11	16984-48-8	N2
Sulfate	**502**	mg/L	50.0	27.5	50		06/14/24 18:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-BMW-1S **Lab ID: 60453812001** Collected: 05/28/24 11:35 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**58.1J**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:09	7440-42-8	
Calcium	**133000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:09	7440-70-2	
Iron	**27.5J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:09	7439-89-6	
Magnesium	**25800**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:09	7439-95-4	
Manganese	**606**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:09	7439-96-5	
Potassium	**404J**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:09	7440-09-7	
Sodium	**6070**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**408**	mg/L	20.0	10.5	1		06/05/24 17:24		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**470**	mg/L	10.0	10.0	1		06/03/24 13:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**10.1**	mg/L	1.0	0.53	1		06/12/24 18:30	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 18:30	16984-48-8	N2
Sulfate	**37.7**	mg/L	10.0	5.5	10		06/12/24 18:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60453815

Sample: S-BMW-3S **Lab ID: 60453812002** Collected: 05/28/24 14:20 Received: 05/30/24 05:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**54.1J**	ug/L	100	6.4	1	06/05/24 14:26	06/07/24 12:11	7440-42-8	
Calcium	**116000**	ug/L	200	26.9	1	06/05/24 14:26	06/07/24 12:11	7440-70-2	
Iron	**33.4J**	ug/L	50.0	9.1	1	06/05/24 14:26	06/07/24 12:11	7439-89-6	
Magnesium	**20500**	ug/L	50.0	20.1	1	06/05/24 14:26	06/07/24 12:11	7439-95-4	
Manganese	**140**	ug/L	5.0	0.39	1	06/05/24 14:26	06/07/24 12:11	7439-96-5	
Potassium	**618**	ug/L	500	69.7	1	06/05/24 14:26	06/07/24 12:11	7440-09-7	
Sodium	**6410**	ug/L	500	115	1	06/05/24 14:26	06/07/24 12:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**364**	mg/L	20.0	10.5	1		06/05/24 17:47		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**529**	mg/L	10.0	10.0	1		06/03/24 13:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**11.1**	mg/L	1.0	0.53	1		06/12/24 19:05	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 19:05	16984-48-8	N2
Sulfate	**19.7**	mg/L	1.0	0.55	1		06/12/24 19:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896847
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004, 60453815001, 60453815002

METHOD BLANK: 3549596 Matrix: Water
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004, 60453815001, 60453815002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/07/24 11:57	
Calcium	ug/L	<26.9	200	26.9	06/07/24 11:57	
Iron	ug/L	<9.1	50.0	9.1	06/07/24 11:57	
Magnesium	ug/L	<20.1	50.0	20.1	06/07/24 11:57	
Manganese	ug/L	<0.39	5.0	0.39	06/07/24 11:57	
Potassium	ug/L	<69.7	500	69.7	06/07/24 11:57	
Sodium	ug/L	<115	500	115	06/07/24 11:57	

LABORATORY CONTROL SAMPLE: 3549597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	954	95	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	9920	99	85-115	
Manganese	ug/L	1000	1040	104	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549598 3549599

Parameter	Units	60453805002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	64.1J	1000	1000	1030	1020	96	96	70-130	1	20	
Calcium	ug/L	112000	10000	10000	122000	121000	99	91	70-130	1	20	
Iron	ug/L	8240	10000	10000	18500	18500	102	103	70-130	0	20	
Magnesium	ug/L	25600	10000	10000	35600	35100	100	96	70-130	1	20	
Manganese	ug/L	572	1000	1000	1610	1580	104	101	70-130	2	20	
Potassium	ug/L	3410	10000	10000	13600	13400	102	100	70-130	1	20	
Sodium	ug/L	6260	10000	10000	16300	16300	100	101	70-130	0	20	

MATRIX SPIKE SAMPLE: 3549600

Parameter	Units	60453812008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	113	1000	1060	95	70-130	
Calcium	ug/L	144000	10000	150000	62	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

MATRIX SPIKE SAMPLE: 3549600

Parameter	Units	60453812008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	33.4J	10000	10300	102	70-130	
Magnesium	ug/L	30000	10000	39100	91	70-130	
Manganese	ug/L	232	1000	1260	103	70-130	
Potassium	ug/L	2300	10000	12500	102	70-130	
Sodium	ug/L	5820	10000	16000	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896969
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60453815003

METHOD BLANK: 3550163 Matrix: Water
Associated Lab Samples: 60453815003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/11/24 09:01	
Calcium	ug/L	<26.9	200	26.9	06/11/24 09:01	
Iron	ug/L	18.2J	50.0	9.1	06/11/24 09:01	
Magnesium	ug/L	<20.1	50.0	20.1	06/11/24 09:01	
Manganese	ug/L	<0.39	5.0	0.39	06/11/24 09:01	
Potassium	ug/L	<69.7	500	69.7	06/11/24 09:01	
Sodium	ug/L	<115	500	115	06/11/24 09:01	

LABORATORY CONTROL SAMPLE: 3550164

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	964	96	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10200	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3550165 3550166

Parameter	Units	60453805003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	586	1000	1000	1570	1630	99	105	70-130	4	20	
Calcium	ug/L	91900	10000	10000	103000	102000	115	104	70-130	1	20	
Iron	ug/L	903	10000	10000	11200	11800	103	109	70-130	5	20	
Magnesium	ug/L	27000	10000	10000	37500	37400	105	104	70-130	0	20	
Manganese	ug/L	171	1000	1000	1190	1260	102	109	70-130	6	20	
Potassium	ug/L	5630	10000	10000	15900	16600	103	110	70-130	5	20	
Sodium	ug/L	20600	10000	10000	30900	31300	103	107	70-130	1	20	

MATRIX SPIKE SAMPLE: 3550167

Parameter	Units	60453805006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	13700	1000	14400	66	70-130	M1
Calcium	ug/L	114000	10000	120000	64	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

MATRIX SPIKE SAMPLE: 3550167

Parameter	Units	60453805006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5140	10000	15100	99	70-130	
Magnesium	ug/L	16400	10000	25800	94	70-130	
Manganese	ug/L	1150	1000	2150	100	70-130	
Potassium	ug/L	12000	10000	21900	100	70-130	
Sodium	ug/L	43700	10000	52400	87	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 897579
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815004, 60453815005, 60453815006, 60453815008

METHOD BLANK: 3553144 Matrix: Water
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815004, 60453815005, 60453815006, 60453815008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/12/24 11:06	
Calcium	ug/L	28.7J	200	26.9	06/12/24 11:06	
Iron	ug/L	<9.1	50.0	9.1	06/12/24 11:06	
Magnesium	ug/L	<20.1	50.0	20.1	06/12/24 11:06	
Manganese	ug/L	<0.39	5.0	0.39	06/12/24 11:06	
Potassium	ug/L	<69.7	500	69.7	06/12/24 11:06	
Sodium	ug/L	<115	500	115	06/12/24 11:06	

LABORATORY CONTROL SAMPLE: 3553145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	952	95	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	9970	100	85-115	
Magnesium	ug/L	10000	9880	99	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	9750	97	85-115	
Sodium	ug/L	10000	9980	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3553146 3553147

Parameter	Units	60453815004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	5390	1000	1000	6320	6440	93	105	70-130	2	20	
Calcium	ug/L	235000	10000	10000	241000	248000	63	129	70-130	3	20	M1
Iron	ug/L	<9.1	10000	10000	9880	10100	99	101	70-130	2	20	
Magnesium	ug/L	58100	10000	10000	67400	69300	93	112	70-130	3	20	
Manganese	ug/L	1160	1000	1000	2140	2200	98	104	70-130	3	20	
Potassium	ug/L	5340	10000	10000	15100	15700	98	103	70-130	3	20	
Sodium	ug/L	68200	10000	10000	76900	78900	87	107	70-130	3	20	

MATRIX SPIKE SAMPLE: 3553149

Parameter	Units	60453812020 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	56.9J	1000	1010	95	70-130	
Calcium	ug/L	117000	10000	126000	95	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

MATRIX SPIKE SAMPLE: 3553149

Parameter	Units	60453812020 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	7750	10000	17900	101	70-130	
Magnesium	ug/L	28700	10000	38300	96	70-130	
Manganese	ug/L	655	1000	1650	100	70-130	
Potassium	ug/L	3890	10000	13800	99	70-130	
Sodium	ug/L	6750	10000	16800	100	70-130	

SAMPLE DUPLICATE: 3554404

Parameter	Units	60453812018 Result	Dup Result	RPD	Max RPD	Qualifiers
Boron	ug/L	2700	2830	5	20	
Calcium	ug/L	109000	116000	6	20	
Iron	ug/L	7300	7630	4	19	
Magnesium	ug/L	27000	28700	6	20	
Manganese	ug/L	789	827	5	12	
Potassium	ug/L	3940	4200	6	20	
Sodium	ug/L	15900	16800	5	20	

SAMPLE DUPLICATE: 3554413

Parameter	Units	60453812020 Result	Dup Result	RPD	Max RPD	Qualifiers
Boron	ug/L	56.9J	54.3J		20	
Calcium	ug/L	117000	119000	2	20	
Iron	ug/L	7750	7690	1	19	
Magnesium	ug/L	28700	29300	2	20	
Manganese	ug/L	655	650	1	12	
Potassium	ug/L	3890	3860	1	20	
Sodium	ug/L	6750	6760	0	20	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 897580
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60453815007

METHOD BLANK: 3553151 Matrix: Water
Associated Lab Samples: 60453815007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/12/24 16:08	
Calcium	ug/L	42.8J	200	26.9	06/12/24 16:08	
Iron	ug/L	<9.1	50.0	9.1	06/12/24 16:08	
Magnesium	ug/L	<20.1	50.0	20.1	06/12/24 16:08	
Manganese	ug/L	<0.39	5.0	0.39	06/12/24 16:08	
Potassium	ug/L	<69.7	500	69.7	06/12/24 16:08	
Sodium	ug/L	<115	500	115	06/12/24 16:08	

LABORATORY CONTROL SAMPLE: 3553152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	952	95	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	9910	99	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	9880	99	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3553153 3553154

Parameter	Units	60453815007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	<6.4	1000	1000	951	951	95	95	70-130	0	20	
Calcium	ug/L	32.8J	10000	10000	10100	10200	101	102	70-130	1	20	
Iron	ug/L	<9.1	10000	10000	10000	10100	100	101	70-130	1	20	
Magnesium	ug/L	<20.1	10000	10000	10200	10200	102	102	70-130	1	20	
Manganese	ug/L	<0.39	1000	1000	1040	1040	104	104	70-130	0	20	
Potassium	ug/L	<69.7	10000	10000	9870	9870	98	98	70-130	0	20	
Sodium	ug/L	<115	10000	10000	10100	10100	101	101	70-130	0	20	

MATRIX SPIKE SAMPLE: 3553155

Parameter	Units	60454210001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	0.15 mg/L	1000	1130	98	70-130	
Calcium	ug/L	44.7 mg/L	10000	55500	108	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

MATRIX SPIKE SAMPLE: 3553155

Parameter	Units	60454210001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	0.68 mg/L	10000	11300	106	70-130	
Magnesium	ug/L	28.1 mg/L	10000	38200	102	70-130	
Manganese	ug/L	0.13 mg/L	1000	1130	100	70-130	
Potassium	ug/L	35.1 mg/L	10000	45400	103	70-130	
Sodium	ug/L	185 mg/L	10000	205000	202	70-130	M1

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896743 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004

METHOD BLANK: 3549169 Matrix: Water
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	06/05/24 16:02	

LABORATORY CONTROL SAMPLE: 3549170

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	518	104	90-110	

SAMPLE DUPLICATE: 3549171

Parameter	Units	60453805003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	265	265	0	10	

SAMPLE DUPLICATE: 3549172

Parameter	Units	60453812001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	408	413	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896830
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815001, 60453815002, 60453815003, 60453815004, 60453815005, 60453815006, 60453815007

METHOD BLANK: 3549482 Matrix: Water
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815001, 60453815002, 60453815003, 60453815004, 60453815005, 60453815006, 60453815007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	06/06/24 12:54	

LABORATORY CONTROL SAMPLE: 3549483

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	512	102	90-110	

SAMPLE DUPLICATE: 3549484

Parameter	Units	60453812020 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	382	382	0	10	

SAMPLE DUPLICATE: 3549485

Parameter	Units	60453815004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	370	371	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896832
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60453815008

METHOD BLANK: 3549490 Matrix: Water
Associated Lab Samples: 60453815008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	06/06/24 15:44	

LABORATORY CONTROL SAMPLE: 3549491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	518	104	90-110	

SAMPLE DUPLICATE: 3549492

Parameter	Units	60453817003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	539	544	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896436
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812001, 60453812002

METHOD BLANK: 3548054 Matrix: Water
Associated Lab Samples: 60453812001, 60453812002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/03/24 13:04	

LABORATORY CONTROL SAMPLE: 3548055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	931	93	80-120	

SAMPLE DUPLICATE: 3548056

Parameter	Units	60453848004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3530	3930	11	10	D6,H1

SAMPLE DUPLICATE: 3548057

Parameter	Units	60453812008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	481	489	2	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896439
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812003, 60453812004, 60453815001, 60453815002

METHOD BLANK: 3548058 Matrix: Water
Associated Lab Samples: 60453812003, 60453812004, 60453815001, 60453815002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/04/24 12:47	

LABORATORY CONTROL SAMPLE: 3548059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	973	97	80-120	

SAMPLE DUPLICATE: 3548060

Parameter	Units	60453775001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2820	2660	6	10	

SAMPLE DUPLICATE: 3548067

Parameter	Units	60453819001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	381	394	3	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896723
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453815003, 60453815004, 60453815006, 60453815007

METHOD BLANK: 3549074 Matrix: Water
Associated Lab Samples: 60453815003, 60453815004, 60453815006, 60453815007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/05/24 09:55	

LABORATORY CONTROL SAMPLE: 3549075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	946	95	80-120	

SAMPLE DUPLICATE: 3549078

Parameter	Units	60453815004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1230	7	10	

SAMPLE DUPLICATE: 3549079

Parameter	Units	60453817003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	531	530	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896817
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812014, 60453815005, 60453815008

METHOD BLANK: 3549433 Matrix: Water
Associated Lab Samples: 60453812014, 60453815005, 60453815008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/05/24 12:20	

LABORATORY CONTROL SAMPLE: 3549434

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	909	91	80-120	

SAMPLE DUPLICATE: 3549437

Parameter	Units	60453818005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	465	467	0	10	

SAMPLE DUPLICATE: 3549438

Parameter	Units	60453805003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	423	415	2	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 896890
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812015, 60453812016

METHOD BLANK: 3549805 Matrix: Water
Associated Lab Samples: 60453812015, 60453812016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/06/24 09:26	

LABORATORY CONTROL SAMPLE: 3549806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	873	87	80-120	

SAMPLE DUPLICATE: 3549807

Parameter	Units	60454084001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	445	440	1	10	

SAMPLE DUPLICATE: 3549809

Parameter	Units	60453812020 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	499	518	4	10	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 897826
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004, 60453815001, 60453815002

METHOD BLANK: 3554025 Matrix: Water
Associated Lab Samples: 60453812001, 60453812002, 60453812003, 60453812004, 60453815001, 60453815002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/11/24 17:27	
Fluoride	mg/L	<0.12	0.20	0.12	06/11/24 17:27	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/11/24 17:27	

LABORATORY CONTROL SAMPLE: 3554026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	N2
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3554027 3554028

Parameter	Units	60453805001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	10.1	5	5	18.3	18.3	163	163	80-120	0	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	4.5	4.5	180	179	80-120	0	15	M1,N2
Sulfate	mg/L	25.0	50	50	135	126	220	202	80-120	7	15	M1

MATRIX SPIKE SAMPLE: 3554029

Parameter	Units	60453812008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.8	5	12.5	94	80-120	
Fluoride	mg/L	<0.12	2.5	2.5	102	80-120	N2
Sulfate	mg/L	41.3	50	94.3	106	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 897827
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453815003, 60453815005, 60453815006, 60453815007

METHOD BLANK: 3554031 Matrix: Water
Associated Lab Samples: 60453815003, 60453815005, 60453815006, 60453815007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/11/24 08:59	
Fluoride	mg/L	<0.12	0.20	0.12	06/11/24 08:59	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/11/24 08:59	

LABORATORY CONTROL SAMPLE: 3554032

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	2.7	107	90-110	N2
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3554033 3554034

Parameter	Units	60453819001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.1	5	5	11.4	11.1	186	180	80-120	3	15	M1
Fluoride	mg/L	0.16J	2.5	2.5	4.9	4.7	191	183	80-120	4	15	M1,N2
Sulfate	mg/L	73.9	50	50	196	172	244	196	80-120	13	15	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3554036 3554037

Parameter	Units	60453805003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	48.7	50	50	107	102	117	106	80-120	5	15	
Fluoride	mg/L	0.13J	2.5	2.5	3.0	2.9	113	111	80-120	2	15	N2
Sulfate	mg/L	73.1	50	50	129	127	113	108	80-120	2	15	

SAMPLE DUPLICATE: 3554035

Parameter	Units	60453819001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	2.1	2.1	0	15	
Fluoride	mg/L	0.16J	0.16J		15	N2
Sulfate	mg/L	73.9	73.6	0	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

SAMPLE DUPLICATE: 3554038

Parameter	Units	60453805003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	48.7	49.5	1	15	
Fluoride	mg/L	0.13J	0.14J		15	N2
Sulfate	mg/L	73.1	73.4	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

QC Batch: 898111
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815004, 60453815008

METHOD BLANK: 3555140 Matrix: Water
Associated Lab Samples: 60453812014, 60453812015, 60453812016, 60453815004, 60453815008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/14/24 14:16	
Fluoride	mg/L	<0.12	0.20	0.12	06/14/24 14:16	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/14/24 14:16	

LABORATORY CONTROL SAMPLE: 3555141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	N2
Sulfate	mg/L	5	5.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3555143 3555144

Parameter	Units	60453815004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	113	250	250	406	451	117	135	80-120	11	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	3.5	3.6	141	144	80-120	3	15	M1,N2
Sulfate	mg/L	475	250	250	799	892	130	167	80-120	11	15	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3555145 3555146

Parameter	Units	60453817003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	11.2	5	5	18.8	18.2	154	140	80-120	4	15	M1
Fluoride	mg/L	0.16J	2.5	2.5	4.9	4.4	189	170	80-120	10	15	M1,N2
Sulfate	mg/L	64.7	50	50	138	140	147	151	80-120	1	15	M1

SAMPLE DUPLICATE: 3555142

Parameter	Units	60453815004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	113	118	4	15	
Fluoride	mg/L	<0.12	<0.12		15	N2
Sulfate	mg/L	475	476	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60453815

SAMPLE DUPLICATE: 3555147

Parameter	Units	60453817003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	11.2	11.2	1	15	
Fluoride	mg/L	0.16J	<0.12		15	N2
Sulfate	mg/L	64.7	65.9	2	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SCPB
Pace Project No.: 60453815

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.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60453815

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60453812001	**S-BMW-1S**	EPA 200.7	896847	EPA 200.7	897011
60453812002	**S-BMW-3S**	EPA 200.7	896847	EPA 200.7	897011
60453812003	**S-LMW-2S**	EPA 200.7	896847	EPA 200.7	897011
60453812004	**S-LMW-4S**	EPA 200.7	896847	EPA 200.7	897011
60453815001	**S-LMW-3S**	EPA 200.7	896847	EPA 200.7	897011
60453815002	**S-LMW-DUP-1**	EPA 200.7	896847	EPA 200.7	897011
60453815003	**S-LMW-7S**	EPA 200.7	896969	EPA 200.7	897200
60453815004	**S-LMW-8S**	EPA 200.7	897579	EPA 200.7	897660
60453815005	**S-LMW-9S**	EPA 200.7	897579	EPA 200.7	897660
60453815006	**S-LMW-DUP-2**	EPA 200.7	897579	EPA 200.7	897660
60453815007	**S-LMW-FB-1**	EPA 200.7	897580	EPA 200.7	897672
60453815008	**S-LMW-FB-2**	EPA 200.7	897579	EPA 200.7	897660
60453812014	**S-LMW-1S**	EPA 200.7	897579	EPA 200.7	897660
60453812015	**S-LMW-5S**	EPA 200.7	897579	EPA 200.7	897660
60453812016	**S-LMW-6S**	EPA 200.7	897579	EPA 200.7	897660
60453812001	**S-BMW-1S**	SM 2320B	896743		
60453812002	**S-BMW-3S**	SM 2320B	896743		
60453812003	**S-LMW-2S**	SM 2320B	896743		
60453812004	**S-LMW-4S**	SM 2320B	896743		
60453815001	**S-LMW-3S**	SM 2320B	896830		
60453815002	**S-LMW-DUP-1**	SM 2320B	896830		
60453815003	**S-LMW-7S**	SM 2320B	896830		
60453815004	**S-LMW-8S**	SM 2320B	896830		
60453815005	**S-LMW-9S**	SM 2320B	896830		
60453815006	**S-LMW-DUP-2**	SM 2320B	896830		
60453815007	**S-LMW-FB-1**	SM 2320B	896830		
60453815008	**S-LMW-FB-2**	SM 2320B	896832		
60453812014	**S-LMW-1S**	SM 2320B	896830		
60453812015	**S-LMW-5S**	SM 2320B	896830		
60453812016	**S-LMW-6S**	SM 2320B	896830		
60453812001	**S-BMW-1S**	SM 2540C	896436		
60453812002	**S-BMW-3S**	SM 2540C	896436		
60453812003	**S-LMW-2S**	SM 2540C	896439		
60453812004	**S-LMW-4S**	SM 2540C	896439		
60453815001	**S-LMW-3S**	SM 2540C	896439		
60453815002	**S-LMW-DUP-1**	SM 2540C	896439		
60453815003	**S-LMW-7S**	SM 2540C	896723		
60453815004	**S-LMW-8S**	SM 2540C	896723		
60453815005	**S-LMW-9S**	SM 2540C	896817		
60453815006	**S-LMW-DUP-2**	SM 2540C	896723		
60453815007	**S-LMW-FB-1**	SM 2540C	896723		
60453815008	**S-LMW-FB-2**	SM 2540C	896817		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60453815

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60453812014	**S-LMW-1S**	SM 2540C	896817		
60453812015	**S-LMW-5S**	SM 2540C	896890		
60453812016	**S-LMW-6S**	SM 2540C	896890		
60453812001	**S-BMW-1S**	EPA 300.0	897826		
60453812002	**S-BMW-3S**	EPA 300.0	897826		
60453812003	**S-LMW-2S**	EPA 300.0	897826		
60453812004	**S-LMW-4S**	EPA 300.0	897826		
60453815001	**S-LMW-3S**	EPA 300.0	897826		
60453815002	**S-LMW-DUP-1**	EPA 300.0	897826		
60453815003	**S-LMW-7S**	EPA 300.0	897827		
60453815004	**S-LMW-8S**	EPA 300.0	898111		
60453815005	**S-LMW-9S**	EPA 300.0	897827		
60453815006	**S-LMW-DUP-2**	EPA 300.0	897827		
60453815007	**S-LMW-FB-1**	EPA 300.0	897827		
60453815008	**S-LMW-FB-2**	EPA 300.0	898111		
60453812014	**S-LMW-1S**	EPA 300.0	898111		
60453812015	**S-LMW-5S**	EPA 300.0	898111		
60453812016	**S-LMW-6S**	EPA 300.0	898111		

WO# : 60453815

60453815

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

Client Name: Rocksmith Geoeng

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

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

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

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

Thermometer Used: T299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.1 **Corr. Factor** 0.0 **Corrected** 2.1

Date and initials of person examining contents: AS 5/30/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 67187	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

60453815

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC#9		
Project Name:	AMEREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment	Preservation non-conformance identified for sample.
S-LMW-3S	WT				5-29-24	1255	2			✓	✓	✓		
S-LMW-7S	WT													
S-LMW-8S	WT													
S-LMW-9S	WT													
S-LMW-DUP-1	WT				5-29-24	–	2			✓	–	–		
S-LMW-DUP-2	WT													
S-LMW-FB-1	WT													
S-LMW-FB-2	WT													
S-LMW-MS-1	WT													
S-LMW-MSD-2	WT													

Specify Container Size **: 1 1 3

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

Identify Container Preservative Type***: 1 1 2

*** 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

Analysis Requested

Lab Use Only

Proj. Mgr: **Jamie Church**

AcctNum / Client ID:

Table #:

Profile / Template: **15856**

Prelog / Bottle Ord. ID: **EZ 3087012**

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

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
1	T299	0.0		2.1	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	5-29-24/1600		5/30/24 0535	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 2

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60453815

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 9		
Project Name:	AMEREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Specify Container Size **: 1 1 3

Identify Container Preservative Type***: 1 1 2

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

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

Lab Use Only

Proj. Mgr: **Jamie Church**

AcctNum / Client ID:

Table #:

Profile / Template: **15856**

Prelog / Bottle Ord. ID: **EZ 3087012**

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment	Preservation non-conformance identified for sample
L-BMW-1S	WT	G			5-28-24	1135	2			✓	✓	✓		
L-BMW-3S	WT	G			1		2			✓	✓	✓		
L-LMW-4S	WT	G			5-29-24		2							
L-LMW-2S														

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

Collected By:
(Printed Name) Grant Moren
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
1	T249	0.0		2.1	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	5-29-24/1600		5/30/24 0535	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 2 of 2

Client: Rocksmith Geoeng Profile # 15856

Site: Notes DO not log page 2 COC.

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	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																		1				1									
2																																
3																																
4																																
5	WT																		1				1									
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

Plastic	
BP1C	1L NAOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2C	500mL NAOH plastic
BP2N	500mL HNO3 plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3F	250mL HNO3 plastic - field filtered
BP3N	250mL HNO3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, Zn Acetate
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic
WPDU	16oz unpresserved plstic

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

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

Work Order Number: 60453815

WO# : 60453815

60453815

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

Client Name: Rocksmith Groeng

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: T299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 3.1/1.8 Corr. Factor 0.0 Corrected 3.1/1.8/1.7

Temperature should be above freezing to 6°C 1.7

Date and initials of person examining contents: JV 6/3/24

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 621871/606203	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60457815

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC#9		
Project Name:	AMEREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET		County / State origin of sample(s):	Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

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

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

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

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment
~~S-LMW-3S~~ S-LMW-1S	WT	G			5-31-24	1335	2			✓	✓	✓	
S-LMW-7S	WT	G			5-30-24	1710	2			✓	✓	✓	
S-LMW-8S	WT	G			1	1703	2			✓	✓	✓	
S-LMW-9S	WT	G			5-31-24	1239	2			✓	✓	✓	
S-LMW-DUP-1	WT												
S-LMW-DUP-2	WT	G			5-30-24	—	2			✓	✓	✓	
S-LMW-FB-1	WT	G			1	1704	2			✓	✓	✓	
S-LMW-FB-2	WT	G			5-31-24	1255	2			✓	✓	✓	
S-LMW-MS-1	WT	G			5-30-24	1703	2			✓	✓	✓	Collected@S-LMW-8S
S-LMW-MSD-1	WT	G			1	1703	2			✓	✓	✓	1

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3087012

Preservation non-conformance identified for sample.

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

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
3	T299	0.0	3.1	1.8	1.7

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Rocksmith	5-31-24/1600		6/1/24 0705
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

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

Page: 1 of 2

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

600453815

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC#9		
Project Name:	AMEREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

Specify Container Size **: 1 1 3

Identify Container Preservative Type***: 1 1 2

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

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

Lab Use Only:
Proj. Mgr: Jamie Church
Acct.Num / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3087012

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment	Preservation non-conformance identified for sample
~~S-LMW-3S~~ S-LMW-5S	WT	G			5-31-24	1258	2			✓	✓	✓		
~~S-LMW-7S~~ S-LMW-6S	WT	G			1	1206	2			✓	✓	✓		
~~S-LMW-8S~~	WT													
~~S-LMW-9S~~	WT													
~~S-LMW-DUP-1~~	WT													
~~S-LMW-DUP-2~~	WT													
~~S-LMW-FB-1~~	WT													
~~S-LMW-FB-2~~	WT													
~~S-LMW-MS-1~~	WT													
~~S-LMW-MSD-2~~	WT													

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

Collected By: (Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp (°C)	On Ice:
3	T299	0.0		3.1/1.8/1.7	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	5-31-24/1600		6/1/24 0705	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 2 of 2

Client: Rocksmith Geoeng

Profile # Do not log page two COC.

Site:

Notes Append to 60453815

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	BP3C	BP3Z	WPDU	ZPLC	Other
1																(Do	not	log	S-LMW-15)											
2	WT																		1				1							
3																			3				3							
4																			1				1							
5																														
6	WT																		1				1							
7																			1				1							
8																			1				1							
9																														
10																														
11																														
12																														

Container Codes

Glass				Plastic		Misc.	
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1C	1L NAOH plastic	I	Wipe/Swab
DG9H	40mL HCl amber voa vial	WGFU	4oz clear soil jar	BP1N	1L HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar	BP1S	1L H2SO4 plastic	ZPLC	Ziploc Bag
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide	BP1U	1L unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2C	500mL NAOH plastic	R	Terracore Kit
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic	U	Summa Can
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic		
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic		
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate	Matrix	
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3C	250mL NaOH plastic		
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered	WT	Water
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic	SL	Solid
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass	BP3U	250mL unpreserved plastic	NAL	Non-aqueous Liquid
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic	OL	OIL
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate	WP	Wipe
				BP4U	125mL unpreserved plastic	DW	Drinking Water
				BP4N	125mL HNO3 plastic		
				BP4S	125mL H2SO4 plastic		
				WPDU	16oz unpresserved plstic		

Work Order Number: 60453815

Memorandum

August 6, 2024

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23009-24
CC:	Mark Haddock, Jeffrey Ingram		
From:	Jack Rasmussen	**Email:**	Jack.Rasmussen@Rocksmithgeo.com
RE:	**Data Validation Summary, Sioux Energy Center – SCPB – Data Package 60453815**		

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).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren SCPB
Project Number: 23009-24
Reviewer: J. Rasmussen
Validation Date: 8/6/2024

Laboratory: Pace Analytical
SDG #: 60453815
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-LMW-3S, S-LMW-DUP-1, S-LMW-7S, S-LMW-8S, S-LMW-9S, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S, S-LMW-2S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			05/28/24-05/31/24
b) Sampling team indicated?	x			GTM/JTA
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	No lab narrative.

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				S-LMW-DUP-1 @ S-LMW-3S (precision met)
	x			S-LMW-DUP-2 @ S-LMW-7S
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?				
	x			
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

General:

Chloride and sulfate diluted in several samples, no qualifications necessary.

Method Blanks:

35550163: iron (18.2J), associated with sample -003, result detected and < RL, qualify as non-detect (U) at reporting limit.

3553144: calcium (28.7J), associated with samples -004, -005, -006, -008, -014, -015, -016. Most sample results > RL and 10x blank, no qualification necessary. -008 result detected and < RL, qualified as non-detect at RL.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Method Blanks, continued:

3553151: calcium (42.8J), associated with sample -007, report at reporting limit and qualify as non-detect (U).

Field Blanks:

S-LMW-FB-1 @ S-LMW-7S: calcium (32.8J), TDS (5.5). Calcium result > RL and 10x blank, no qualification necessary.

TDS result > RL and 10x blank, no qualification necessary.

S-LMW-FB-2 @ S-LMW-9S: boron (6.7J), calcium (31.7J), sodium (258J). Boron result > RL and 10x blank, no qualification necessary.

Calcium result > RL and 10x blank, no qualification necessary. Sodium result > RL and 10x blank, no qualification necessary.

Duplicates:

S-LMW-DUP-2 @ S-LMW-7S: field duplicate RPD exceeds control limit (20%) for iron, total (32%), results qualified as estimates.

Lab duplicate max RPD: 10%: alkalinity, TDS; 15%: chloride, fluoride, sulfate: 20%: ferrous iron, sulfide.

3548056: Lab duplicate exceeds max RPD for TDS, associated with unrelated sample.

MS/MSD:

3549600: MS recovery low for calcium, associated with unrelated sample.

3550167: MS recovery low for boron and calcium, associated with unrelated sample.

3553146/3553147: MS recovery low for calcium, MSD recovery and RPD within control limits, associated with sample -004, no qualification necessary.

3553155: MS recovery high for sodium, associated with unrelated sample.

3554027/3554028: MS/MSD recovery high for chloride, fluoride, sulfate, associated with unrelated sample.

3554033/3554034: MS/MSD recovery high for chloride, fluoride, sulfate, associated with unrelated sample.

3555143/3555144: MSD recovery high for chloride. MS/MSD recovery high for fluoride and sulfate, RPDs within control limits associated with sample -004. Chloride has no qualification necessary, fluoride is a non- detect and no qualification necessary, sulfate qualified as estimate.

3555145/3555146: MS/MSD recovery high for chloride, fluoride and sulfate, associated with unrelated sample.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-7S	Iron, Total	50	U	Detected in method blank, result < RL
S-LMW-FB-1	Calcium	200	U	Detected in method blank, result < RL
S-LMW-DUP-2	Iron, Total	15.3	J	Field DUP RPD exceeds control limits
S-LMW-7S	"	21.3	J	"
S-LMW-8S	Sulfate	475	J+	MS/MSD recovery high
S-LMW-FB-2	Calcium	200	U	Detected in method blank, result < RL

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Date: 08/06/2024

Pace Analytical Services, LLC
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(913)599-5665

August 12, 2024

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

RE: Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on July 31, 2024. 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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
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CERTIFICATIONS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60457660001	**S-LMW-1S**	Water	07/29/24 14:03	07/31/24 07:07
60457660002	**S-LMW-6S**	Water	07/29/24 09:59	07/31/24 07:07
60457660003	**S-LMW-4S**	Water	07/29/24 10:00	07/31/24 07:07
60457660004	**S-LMW-DUP-1**	Water	07/29/24 00:00	07/31/24 07:07
60457660005	**S-LMW-FB-1**	Water	07/29/24 10:10	07/31/24 07:07

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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60457660001	**S-LMW-1S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	2	PASI-K
60457660002	**S-LMW-6S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	2	PASI-K
60457660003	**S-LMW-4S**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	2	PASI-K
60457660004	**S-LMW-DUP-1**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	2	PASI-K
60457660005	**S-LMW-FB-1**	EPA 200.7	JXD	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	2	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Sample: S-LMW-1S **Lab ID: 60457660001** Collected: 07/29/24 14:03 Received: 07/31/24 07:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**144000**	ug/L	200	26.9	1	07/31/24 15:33	08/08/24 12:00	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**648**	mg/L	13.3	13.3	1		07/31/24 09:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**202**	mg/L	20.0	10.5	20		08/06/24 19:41	16887-00-6	
Sulfate	**97.7**	mg/L	20.0	11.0	20		08/06/24 19:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Sample: S-LMW-6S **Lab ID: 60457660002** Collected: 07/29/24 09:59 Received: 07/31/24 07:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**200000**	ug/L	200	26.9	1	07/31/24 15:33	08/08/24 12:02	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1030**	mg/L	13.3	13.3	1		07/31/24 09:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**54.4**	mg/L	50.0	26.4	50		08/06/24 21:49	16887-00-6	D6,M1
Sulfate	**537**	mg/L	50.0	27.5	50		08/06/24 21:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Sample: S-LMW-4S **Lab ID: 60457660003** Collected: 07/29/24 10:00 Received: 07/31/24 07:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**194000**	ug/L	200	26.9	1	07/31/24 15:33	08/08/24 12:07	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**799**	mg/L	13.3	13.3	1		07/31/24 09:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**30.2**	mg/L	5.0	2.6	5		08/06/24 23:03	16887-00-6	
Sulfate	**185**	mg/L	20.0	11.0	20		08/06/24 23:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Sample: S-LMW-DUP-1 **Lab ID: 60457660004** Collected: 07/29/24 00:00 Received: 07/31/24 07:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**144000**	ug/L	200	26.9	1	07/31/24 15:33	08/08/24 12:09	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**707**	mg/L	13.3	13.3	1		07/31/24 09:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**197**	mg/L	20.0	10.5	20		08/06/24 23:40	16887-00-6	
Sulfate	**105**	mg/L	20.0	11.0	20		08/06/24 23:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Sample: S-LMW-FB-1 **Lab ID: 60457660005** Collected: 07/29/24 10:10 Received: 07/31/24 07:07 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**<26.9**	ug/L	200	26.9	1	07/31/24 15:33	08/08/24 12:10	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**13.0**	mg/L	5.0	5.0	1		07/31/24 09:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		08/06/24 23:58	16887-00-6	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		08/06/24 23:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

QC Batch: 903692
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

METHOD BLANK: 3576450 Matrix: Water
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	<26.9	200	26.9	08/08/24 11:38	

LABORATORY CONTROL SAMPLE: 3576451

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3576453 3576452

Parameter	Units	60457660002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	200000	10000	10000	211000	210000	105	95	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

QC Batch: 903652
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

METHOD BLANK: 3576269 Matrix: Water
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/31/24 09:36	

LABORATORY CONTROL SAMPLE: 3576270

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	927	93	80-120	

SAMPLE DUPLICATE: 3576307

Parameter	Units	60457660002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1030	1030	1	10	

SAMPLE DUPLICATE: 3576332

Parameter	Units	60457662001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	440	465	6	10	

SAMPLE DUPLICATE: 3576333

Parameter	Units	60457663003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	573	574	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

QC Batch: 904194
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

METHOD BLANK: 3578340 Matrix: Water
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	08/06/24 11:06	
Sulfate	mg/L	<0.55	1.0	0.55	08/06/24 11:06	

METHOD BLANK: 3580377 Matrix: Water
Associated Lab Samples: 60457660001, 60457660002, 60457660003, 60457660004, 60457660005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	08/08/24 09:44	
Sulfate	mg/L	<0.55	1.0	0.55	08/08/24 09:44	

LABORATORY CONTROL SAMPLE: 3578341

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	4.7	93	90-110	

LABORATORY CONTROL SAMPLE: 3580378

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3578342 3578343

Parameter	Units	60457658003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	28.2	50	50	61.9	64.6	67	73	80-120	4	15	M1
Sulfate	mg/L	52.3	50	50	96.2	105	88	106	80-120	9	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3578345 3578346

Parameter	Units	60457660002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	54.4	250	250	248	248	78	77	80-120	0	15	M1
Sulfate	mg/L	537	250	250	762	736	90	80	80-120	3	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3578348 3578349

Parameter	Units	60457662001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	9.0	5	5	11.6	11.5	51	50	80-120	0	15	M1
Sulfate	mg/L	82.2	5	5	88.0	90.3	116	163	80-120	3	15	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3578351 3578352

Parameter	Units	60457663003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	34.0	25	25	45.7	45.7	47	47	80-120	0	15	M1
Sulfate	mg/L	83.3	25	25	108	110	101	105	80-120	1	15	

SAMPLE DUPLICATE: 3578344

Parameter	Units	60457658003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	28.2	19.7	35	15	D6
Sulfate	mg/L	52.3	47.1	11	15	

SAMPLE DUPLICATE: 3578347

Parameter	Units	60457660002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	54.4	64.8	17	15	D6
Sulfate	mg/L	537	499	7	15	

SAMPLE DUPLICATE: 3578350

Parameter	Units	60457662001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	9.0	8.9	1	15	
Sulfate	mg/L	82.2	85.3	4	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

SAMPLE DUPLICATE: 3578353

Parameter	Units	60457663003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	34.0	31.9	7	15	
Sulfate	mg/L	83.3	81.7	2	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Lenexa, KS 66219
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB - VERIFICATION
Pace Project No.: 60457660

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60457660001	**S-LMW-1S**	EPA 200.7	903692	EPA 200.7	903755
60457660002	**S-LMW-6S**	EPA 200.7	903692	EPA 200.7	903755
60457660003	**S-LMW-4S**	EPA 200.7	903692	EPA 200.7	903755
60457660004	**S-LMW-DUP-1**	EPA 200.7	903692	EPA 200.7	903755
60457660005	**S-LMW-FB-1**	EPA 200.7	903692	EPA 200.7	903755
60457660001	**S-LMW-1S**	SM 2540C	903652		
60457660002	**S-LMW-6S**	SM 2540C	903652		
60457660003	**S-LMW-4S**	SM 2540C	903652		
60457660004	**S-LMW-DUP-1**	SM 2540C	903652		
60457660005	**S-LMW-FB-1**	SM 2540C	903652		
60457660001	**S-LMW-1S**	EPA 300.0	904194		
60457660002	**S-LMW-6S**	EPA 300.0	904194		
60457660003	**S-LMW-4S**	EPA 300.0	904194		
60457660004	**S-LMW-DUP-1**	EPA 300.0	904194		
60457660005	**S-LMW-FB-1**	EPA 300.0	904194		

WO# : 60457660

60457660

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

Client Name: Rocksmith Geo

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: T299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.4/1.0 **Corr. Factor** 0.6 **Corrected** 1.4/1.0

Date and initials of person examining contents: PV 7/31/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 67187	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

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

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: Calcium	Chloride	Sulfate	Total Dissolved Solids	Residual Chlorine (Y/N)
1	~~S-LMW-2S~~ S-LMW-1S	WT	G			7-29-24	1403		2	1		1						N	✓	✓	✓	✓	
2	S-LMW-6S	WT	G			7-29-24	0959		2	1		1						N	✓	✓	✓	✓	
3	~~S-LMW-9S~~ S-LMW-4S	WT	G			7-29-24	1000		2	1		1						N	✓	✓	✓	✓	
4	S-LMW-DUP-1	WT	G			7-29-24	-		2	1		1						N	✓	✓	✓	✓	
5	S-LMW-FB-1	WT	G			7-29-24	1010		2	1		1						N	✓	✓	✓	✓	
6	S-LMW-MS-1	WT	G			7-29-24	1159		2	1		1						N	✓	✓	✓	✓	
7	S-LMW-MSD-1	WT	G			7-29-24	1159		2	1		1						N	✓	✓	✓	✓	
8		WT	G																				
9		WT	G																				
10		WT	G																				
11		WT	G																				
12		WT	G																				

Requested Analysis Filtered (Y/N): N N N N N N N N N N

Residual Chlorine (Y/N): Collected @ S-LMW-6S

60457660
Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature] / Rock Smith	7-30-24	12:43	[signature] PACE	7/31	0707	1-4	Y	Y	Y
							1-4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/30/24

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

Client: Rocksmith Geo 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																			1			1									
2	↓																			3			3		MS/MSD							
3																				1			1									
4																				1			1									
5																				1			1									
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

Glass				Plastic		Misc.	
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1B	1L NAOH plastic	I	Wipe/Swab
DG9H	40mL HCl amber voa vial	WGFU	4oz clear soil jar	BP1N	1L HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar	BP1S	1L H2SO4 plastic	ZPLC	Ziploc Bag
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide	BP1U	1L unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2B	500mL NAOH plastic	R	Terracore Kit
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic	U	Summa Can
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic		
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic		
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate	Matrix	
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3B	250mL NaOH plastic		
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered	WT	Water
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic	SL	Solid
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass	BP3U	250mL unpreserved plastic	NAL	Non-aqueous Liquid
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic	OL	OIL
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate	WP	Wipe
				BP4U	125mL unpreserved plastic	DW	Drinking Water
				BP4N	125mL HNO3 plastic		
				BP4S	125mL H2SO4 plastic		
				WPDU	16oz unpresserved plstic		

Work Order Number: 60457660

Memorandum

August 14, 2024

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23009-24
CC:	Mark Haddock, Jeffrey Ingram		
From:	Jack Rasmussen	**Email:**	jack.rasmussen@rocksmithgeo.com
RE:	**Data Validation Summary, Sioux Energy Center – SCPB – Data Package 60457660**		

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 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 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 Manager: J. Ingram
Project Name: Ameren SCPB - Verification
Project Number: 23009-24
Reviewer: J. Rasmussen
Validation Date: 8/14/2024

Laboratory: Pace Analytical
SDG #: 60457660
Analytical Method (type and no.): EPA 200.7 (Total Metals); EPA 300.0 (Anions); SM2540C (TDS)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-LMW-1S, S-LMW-6S, S-LMW-4S, S-LMW-DUP-1, S-LMW-FB-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			07/29/2024
b) Sampling team indicated?	x			GTM/JTR
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	No lab narrative.

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				S-LMW-DUP-1 @ S-LMW-1S
	☒	☐	☐	
b) Were field dup. precision criteria met (note RPD)?	☒	☐	☐	All RPD's within control limits.
c) Were lab duplicates analyzed (note original and duplicate samples)?				
	☒	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☐	☒	☐	See Notes

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

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

Comments/Notes:

General:

Chloride and sulfate diluted in several samples, no qualifications necessary.

Field Blank:

S-LMW-FB-1 @ S-LMW-4S: TDS (13.0), result > RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Duplicate:

Lab duplicate max RPD: 10%: TDS; 15%: chloride, sulfate.

3578344: Lab duplicate exceeds max RPD for chloride, associated with unrelated sample, no qualification necessary.

3578347: Lab duplicate exceeds max RPD for chloride, associated with sample -002, result qualified as estimates.

MS/MSD:

3578342/3578343: MS and MSD recovery low for chloride, RPD okay. Associated with unrelated sample, no qualification necessary.

3578345/3578346: MS and MSD recovery low for chloride, RPD okay. Associated with sample -002, result qualified as estimate.

3578348/3578349: MS and MSD recovery low for chloride, RPD okay. MS recovery high for sulfate, RPD and MSD okay.

Associated with unrelated sample, no qualification necessary.

3578351/3578352: MS and MSD recovery low for chloride, RPD okay. Associated with unrelated sample, no qualification necessary.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-6S	Chloride	54.4	J	Lab RPD exceeds control limits
S-LMW-6S	Chloride	54.4	J-	MS and MSD recovery low, RPD okay

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Date: 08/14/2024

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

December 23, 2024

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

RE: Project: AMEREN SCPB
Pace Project No.: 60464795

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between November 16, 2024 and November 21, 2024. 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

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

CERTIFICATIONS

Project: AMEREN SCPB
Pace Project No.: 60464795

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

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

SAMPLE SUMMARY

Project: AMEREN SCPB
Pace Project No.: 60464795

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60464795001	**S-LMW-7S**	Water	11/15/24 11:35	11/16/24 05:34
60464795002	**S-LMW-8S**	Water	11/15/24 10:29	11/16/24 05:34
60464795003	**S-LMW-9S**	Water	11/15/24 09:13	11/16/24 05:34
60464795004	**S-LMW-DUP-1**	Water	11/15/24 08:00	11/16/24 05:34
60464795005	**S-LMW-DUP-2**	Water	11/15/24 08:00	11/16/24 05:34
60464795006	**S-LMW-FB-1**	Water	11/15/24 11:50	11/16/24 05:34
60464795007	**S-LMW-3S**	Water	11/19/24 09:58	11/21/24 07:45
60464795008	**S-LMW-FB-2**	Water	11/19/24 09:55	11/21/24 07:45
60464699005	**S-LMW-1S**	Water	11/14/24 16:06	11/16/24 05:34
60464699013	**S-LMW-2S**	Water	11/19/24 12:27	11/21/24 07:45
60464699014	**S-LMW-4S**	Water	11/19/24 11:13	11/21/24 07:45
60464699006	**S-LMW-5S**	Water	11/15/24 13:40	11/16/24 05:34
60464699007	**S-LMW-6S**	Water	11/15/24 12:48	11/16/24 05:34
60464699011	**S-BMW-1S**	Water	11/20/24 09:00	11/21/24 07:45
60464699012	**S-BMW-3S**	Water	11/20/24 11:43	11/21/24 07:45

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60464795

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60464795001	**S-LMW-7S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795002	**S-LMW-8S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795003	**S-LMW-9S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795004	**S-LMW-DUP-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795005	**S-LMW-DUP-2**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795006	**S-LMW-FB-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795007	**S-LMW-3S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464795008	**S-LMW-FB-2**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699005	**S-LMW-1S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699013	**S-LMW-2S**	EPA 200.7	ARMN	7	PASI-K

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60464795

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699014	**S-LMW-4S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699006	**S-LMW-5S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699007	**S-LMW-6S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699011	**S-BMW-1S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60464699012	**S-BMW-3S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-7S **Lab ID: 60464795001** Collected: 11/15/24 11:35 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3700**	ug/L	100	6.4	1	11/18/24 13:51	12/04/24 16:38	7440-42-8	
Calcium	**213000**	ug/L	200	26.9	1	11/18/24 13:51	12/04/24 16:38	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	11/18/24 13:51	12/04/24 16:38	7439-89-6	
Magnesium	**56100**	ug/L	50.0	20.1	1	11/18/24 13:51	12/04/24 16:38	7439-95-4	
Manganese	**643**	ug/L	5.0	0.39	1	11/18/24 13:51	12/04/24 16:38	7439-96-5	
Potassium	**4560**	ug/L	500	69.7	1	11/18/24 13:51	12/04/24 16:38	7440-09-7	
Sodium	**22200**	ug/L	500	115	1	11/18/24 13:51	12/04/24 16:38	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**367**	mg/L	20.0	10.5	1		11/27/24 19:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**998**	mg/L	20.0	20.0	1		11/20/24 12:10		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**31.6**	mg/L	20.0	10.5	20		11/27/24 17:47	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/27/24 17:33	16984-48-8	
Sulfate	**396**	mg/L	20.0	11.0	20		11/27/24 17:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-8S **Lab ID: 60464795002** Collected: 11/15/24 10:29 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**7410**	ug/L	100	6.4	1	11/18/24 14:00	12/13/24 14:53	7440-42-8	
Calcium	**342000**	ug/L	200	26.9	1	11/18/24 14:00	12/13/24 14:53	7440-70-2	M1,P6
Iron	**<9.1**	ug/L	50.0	9.1	1	11/18/24 14:00	12/13/24 14:53	7439-89-6	
Magnesium	**82400**	ug/L	50.0	20.1	1	11/18/24 14:00	12/13/24 14:53	7439-95-4	
Manganese	**1790**	ug/L	5.0	0.39	1	11/18/24 14:00	12/13/24 14:53	7439-96-5	
Potassium	**5620**	ug/L	500	69.7	1	11/18/24 14:00	12/13/24 14:53	7440-09-7	
Sodium	**70500**	ug/L	500	115	1	11/18/24 14:00	12/13/24 14:53	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**424**	mg/L	20.0	10.5	1		11/27/24 19:59		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1870**	mg/L	66.7	66.7	1		11/20/24 12:10		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**205**	mg/L	20.0	10.5	20		11/27/24 09:15	16887-00-6	
Fluoride	**0.48**	mg/L	0.20	0.12	1		11/27/24 09:01	16984-48-8	M1,R1
Sulfate	**745**	mg/L	50.0	27.5	50		11/27/24 09:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-9S **Lab ID: 60464795003** Collected: 11/15/24 09:13 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**986**	ug/L	100	6.4	1	11/18/24 14:00	12/13/24 14:59	7440-42-8	
Calcium	**201000**	ug/L	200	26.9	1	11/18/24 14:00	12/13/24 14:59	7440-70-2	
Iron	**15.8J**	ug/L	50.0	9.1	1	11/18/24 14:00	12/13/24 14:59	7439-89-6	
Magnesium	**66100**	ug/L	50.0	20.1	1	11/18/24 14:00	12/13/24 14:59	7439-95-4	
Manganese	**277**	ug/L	5.0	0.39	1	11/18/24 14:00	12/13/24 14:59	7439-96-5	
Potassium	**3950**	ug/L	500	69.7	1	11/18/24 14:00	12/13/24 14:59	7440-09-7	
Sodium	**26700**	ug/L	500	115	1	11/18/24 14:00	12/13/24 14:59	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**680**	mg/L	20.0	10.5	1		11/27/24 20:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**992**	mg/L	20.0	20.0	1		11/20/24 12:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**39.2**	mg/L	20.0	10.5	20		11/27/24 18:29	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.12	1		11/27/24 18:15	16984-48-8	
Sulfate	**158**	mg/L	20.0	11.0	20		11/27/24 18:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-DUP-1 **Lab ID: 60464795004** Collected: 11/15/24 08:00 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**984**	ug/L	100	6.4	1	11/18/24 14:00	12/13/24 15:01	7440-42-8	
Calcium	**202000**	ug/L	200	26.9	1	11/18/24 14:00	12/13/24 15:01	7440-70-2	
Iron	**21.3J**	ug/L	50.0	9.1	1	11/18/24 14:00	12/13/24 15:01	7439-89-6	
Magnesium	**66700**	ug/L	50.0	20.1	1	11/18/24 14:00	12/13/24 15:01	7439-95-4	
Manganese	**327**	ug/L	5.0	0.39	1	11/18/24 14:00	12/13/24 15:01	7439-96-5	
Potassium	**4080**	ug/L	500	69.7	1	11/18/24 14:00	12/13/24 15:01	7440-09-7	
Sodium	**27200**	ug/L	500	115	1	11/18/24 14:00	12/13/24 15:01	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**680**	mg/L	20.0	10.5	1		11/27/24 20:18		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1010**	mg/L	20.0	20.0	1		11/20/24 12:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**42.7**	mg/L	20.0	10.5	20		11/27/24 18:56	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.12	1		11/27/24 18:43	16984-48-8	
Sulfate	**160**	mg/L	20.0	11.0	20		11/27/24 18:56	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-DUP-2 **Lab ID: 60464795005** Collected: 11/15/24 08:00 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3480**	ug/L	100	6.4	1	11/18/24 14:00	12/13/24 15:03	7440-42-8	
Calcium	**193000**	ug/L	200	26.9	1	11/18/24 14:00	12/13/24 15:03	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	11/18/24 14:00	12/13/24 15:03	7439-89-6	
Magnesium	**51300**	ug/L	50.0	20.1	1	11/18/24 14:00	12/13/24 15:03	7439-95-4	
Manganese	**622**	ug/L	5.0	0.39	1	11/18/24 14:00	12/13/24 15:03	7439-96-5	
Potassium	**4080**	ug/L	500	69.7	1	11/18/24 14:00	12/13/24 15:03	7440-09-7	
Sodium	**20100**	ug/L	500	115	1	11/18/24 14:00	12/13/24 15:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**376**	mg/L	20.0	10.5	1		11/27/24 20:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**966**	mg/L	20.0	20.0	1		11/20/24 12:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**31.7**	mg/L	20.0	10.5	20		11/27/24 19:52	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/27/24 19:38	16984-48-8	
Sulfate	**392**	mg/L	20.0	11.0	20		11/27/24 19:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-FB-1 **Lab ID: 60464795006** Collected: 11/15/24 11:50 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<6.4**	ug/L	100	6.4	1	11/18/24 14:00	12/13/24 15:05	7440-42-8	
Calcium	**<26.9**	ug/L	200	26.9	1	11/18/24 14:00	12/13/24 15:05	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	11/18/24 14:00	12/13/24 15:05	7439-89-6	
Magnesium	**<20.1**	ug/L	50.0	20.1	1	11/18/24 14:00	12/13/24 15:05	7439-95-4	
Manganese	**<0.39**	ug/L	5.0	0.39	1	11/18/24 14:00	12/13/24 15:05	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	11/18/24 14:00	12/13/24 15:05	7440-09-7	
Sodium	**<115**	ug/L	500	115	1	11/18/24 14:00	12/13/24 15:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		11/27/24 20:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/20/24 12:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		11/27/24 20:20	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/27/24 20:20	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		11/27/24 20:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-3S **Lab ID: 60464795007** Collected: 11/19/24 09:58 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**151**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:40	7440-42-8	
Calcium	**143000**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:40	7440-70-2	P6
Iron	**95.9**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:40	7439-89-6	
Magnesium	**29500**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:40	7439-95-4	
Manganese	**45.0**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:40	7439-96-5	
Potassium	**4440**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:40	7440-09-7	
Sodium	**19300**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:40	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**450**	mg/L	20.0	10.5	1		12/02/24 14:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**569**	mg/L	13.3	13.3	1		11/26/24 15:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**13.3**	mg/L	1.0	0.53	1		12/03/24 15:32	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.12	1		12/03/24 15:32	16984-48-8	
Sulfate	**46.3**	mg/L	10.0	5.5	10		12/03/24 15:45	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-FB-2 **Lab ID: 60464795008** Collected: 11/19/24 09:55 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<6.4**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:18	7440-42-8	
Calcium	**<26.9**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:18	7440-70-2	
Iron	**11.4J**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:18	7439-89-6	
Magnesium	**26.2J**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:18	7439-95-4	
Manganese	**<0.39**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:18	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:18	7440-09-7	
Sodium	**<115**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:18	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		12/02/24 14:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/26/24 15:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		12/03/24 16:11	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.12	1		12/03/24 16:11	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		12/03/24 16:11	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-1S **Lab ID: 60464699005** Collected: 11/14/24 16:06 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1240**	ug/L	100	6.4	1	11/20/24 09:33	12/04/24 16:57	7440-42-8	
Calcium	**142000**	ug/L	200	26.9	1	11/20/24 09:33	12/04/24 16:57	7440-70-2	
Iron	**39.6J**	ug/L	50.0	9.1	1	11/20/24 09:33	12/04/24 16:57	7439-89-6	
Magnesium	**32000**	ug/L	50.0	20.1	1	11/20/24 09:33	12/04/24 16:57	7439-95-4	
Manganese	**56.1**	ug/L	5.0	0.39	1	11/20/24 09:33	12/04/24 16:57	7439-96-5	
Potassium	**9960**	ug/L	500	69.7	1	11/20/24 09:33	12/04/24 16:57	7440-09-7	
Sodium	**51600**	ug/L	500	115	1	11/20/24 09:33	12/04/24 16:57	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**300**	mg/L	20.0	10.5	1		11/27/24 18:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**713**	mg/L	13.3	13.3	1		11/19/24 12:20		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**175**	mg/L	20.0	10.5	20		12/15/24 02:09	16887-00-6	H1
Fluoride	**0.34**	mg/L	0.20	0.12	1		12/15/24 01:56	16984-48-8	H1,IC
Sulfate	**108**	mg/L	20.0	11.0	20		12/15/24 02:09	14808-79-8	H1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-2S **Lab ID: 60464699013** Collected: 11/19/24 12:27 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**9060**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:23	7440-42-8	
Calcium	**172000**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:23	7440-70-2	
Iron	**23.4J**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:23	7439-89-6	
Magnesium	**34300**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:23	7439-95-4	
Manganese	**480**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:23	7439-96-5	
Potassium	**5590**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:23	7440-09-7	
Sodium	**69700**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:23	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**334**	mg/L	20.0	10.5	1		12/02/24 17:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**892**	mg/L	13.3	13.3	1		11/27/24 17:57		H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**137**	mg/L	20.0	10.5	20		12/14/24 18:28	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		12/14/24 18:14	16984-48-8	
Sulfate	**234**	mg/L	20.0	11.0	20		12/14/24 18:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-4S **Lab ID: 60464699014** Collected: 11/19/24 11:13 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**310**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:30	7440-42-8	
Calcium	**220000**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:30	7440-70-2	
Iron	**9.7J**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:30	7439-89-6	
Magnesium	**51500**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:30	7439-95-4	
Manganese	**345**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:30	7439-96-5	
Potassium	**5810**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:30	7440-09-7	
Sodium	**10800**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:30	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**729**	mg/L	20.0	10.5	1		12/02/24 17:25		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**785**	mg/L	13.3	13.3	1		11/27/24 17:57		H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.3**	mg/L	1.0	0.53	1		12/14/24 18:42	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		12/14/24 18:42	16984-48-8	
Sulfate	**33.3**	mg/L	5.0	2.8	5		12/14/24 18:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-5S **Lab ID: 60464699006** Collected: 11/15/24 13:40 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**17700**	ug/L	100	6.4	1	11/18/24 13:51	12/04/24 16:09	7440-42-8	
Calcium	**236000**	ug/L	200	26.9	1	11/18/24 13:51	12/04/24 16:09	7440-70-2	
Iron	**66.1**	ug/L	50.0	9.1	1	11/18/24 13:51	12/04/24 16:09	7439-89-6	
Magnesium	**41400**	ug/L	50.0	20.1	1	11/18/24 13:51	12/04/24 16:09	7439-95-4	
Manganese	**1700**	ug/L	5.0	0.39	1	11/18/24 13:51	12/04/24 16:09	7439-96-5	
Potassium	**4190**	ug/L	500	69.7	1	11/18/24 13:51	12/04/24 16:09	7440-09-7	
Sodium	**192000**	ug/L	500	115	1	11/18/24 13:51	12/04/24 16:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**300**	mg/L	20.0	10.5	1		11/27/24 18:40		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1630**	mg/L	40.0	40.0	1		11/20/24 12:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**10.6**	mg/L	1.0	0.53	1		12/15/24 02:22	16887-00-6	H1
Fluoride	**0.37**	mg/L	0.20	0.12	1		12/15/24 02:22	16984-48-8	H1,IC
Sulfate	**915**	mg/L	100	55.0	100		12/15/24 02:48	14808-79-8	H1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-LMW-6S **Lab ID: 60464699007** Collected: 11/15/24 12:48 Received: 11/16/24 05:34 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**17800**	ug/L	100	6.4	1	11/18/24 13:51	12/04/24 16:11	7440-42-8	
Calcium	**259000**	ug/L	200	26.9	1	11/18/24 13:51	12/04/24 16:11	7440-70-2	
Iron	**43.6J**	ug/L	50.0	9.1	1	11/18/24 13:51	12/04/24 16:11	7439-89-6	
Magnesium	**57400**	ug/L	50.0	20.1	1	11/18/24 13:51	12/04/24 16:11	7439-95-4	
Manganese	**457**	ug/L	5.0	0.39	1	11/18/24 13:51	12/04/24 16:11	7439-96-5	
Potassium	**4320**	ug/L	500	69.7	1	11/18/24 13:51	12/04/24 16:11	7440-09-7	
Sodium	**66500**	ug/L	500	115	1	11/18/24 13:51	12/04/24 16:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**459**	mg/L	20.0	10.5	1		11/27/24 18:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1290**	mg/L	20.0	20.0	1		11/20/24 12:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**6.4**	mg/L	1.0	0.53	1		12/15/24 03:26	16887-00-6	H1
Fluoride	**0.33**	mg/L	0.20	0.12	1		12/15/24 03:26	16984-48-8	H1,IC
Sulfate	**547**	mg/L	50.0	27.5	50		12/15/24 03:52	14808-79-8	H1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-BMW-1S **Lab ID: 60464699011** Collected: 11/20/24 09:00 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**61.9J**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:19	7440-42-8	
Calcium	**175000**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:19	7440-70-2	
Iron	**121**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:19	7439-89-6	
Magnesium	**33700**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:19	7439-95-4	
Manganese	**1070**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:19	7439-96-5	
Potassium	**450J**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:19	7440-09-7	
Sodium	**5690**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:19	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**347**	mg/L	20.0	10.5	1		12/02/24 16:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**613**	mg/L	13.3	13.3	1		11/27/24 17:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**14.2**	mg/L	1.0	0.53	1		12/14/24 17:32	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		12/14/24 17:32	16984-48-8	
Sulfate	**37.1**	mg/L	10.0	5.5	10		12/14/24 17:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60464795

Sample: S-BMW-3S **Lab ID: 60464699012** Collected: 11/20/24 11:43 Received: 11/21/24 07:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**57.3J**	ug/L	100	6.4	1	11/22/24 09:01	12/10/24 11:21	7440-42-8	
Calcium	**113000**	ug/L	200	26.9	1	11/22/24 09:01	12/10/24 11:21	7440-70-2	
Iron	**28.9J**	ug/L	50.0	9.1	1	11/22/24 09:01	12/10/24 11:21	7439-89-6	
Magnesium	**19800**	ug/L	50.0	20.1	1	11/22/24 09:01	12/10/24 11:21	7439-95-4	
Manganese	**268**	ug/L	5.0	0.39	1	11/22/24 09:01	12/10/24 11:21	7439-96-5	
Potassium	**452J**	ug/L	500	69.7	1	11/22/24 09:01	12/10/24 11:21	7440-09-7	
Sodium	**5840**	ug/L	500	115	1	11/22/24 09:01	12/10/24 11:21	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**166**	mg/L	20.0	10.5	1		12/02/24 17:03		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**413**	mg/L	10.0	10.0	1		11/27/24 17:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**13.1**	mg/L	1.0	0.53	1		12/14/24 18:00	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		12/14/24 18:00	16984-48-8	
Sulfate	**17.1**	mg/L	1.0	0.55	1		12/14/24 18:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 916806
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699006, 60464699007, 60464795001

METHOD BLANK: 3630185 Matrix: Water
Associated Lab Samples: 60464699006, 60464699007, 60464795001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	12/04/24 16:03	
Calcium	ug/L	<26.9	200	26.9	12/04/24 16:03	
Iron	ug/L	<9.1	50.0	9.1	12/04/24 16:03	
Magnesium	ug/L	<20.1	50.0	20.1	12/04/24 16:03	
Manganese	ug/L	<0.39	5.0	0.39	12/04/24 16:03	
Potassium	ug/L	<69.7	500	69.7	12/04/24 16:03	
Sodium	ug/L	<115	500	115	12/04/24 16:03	

LABORATORY CONTROL SAMPLE: 3630186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	932	93	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	10000	100	85-115	
Magnesium	ug/L	10000	9880	99	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	9750	98	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3630187 3630188

Parameter	Units	60464704004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	103	1000	1000	1060	1040	96	94	70-130	2	20	
Calcium	ug/L	141000	10000	10000	150000	149000	97	79	70-130	1	20	
Iron	ug/L	1160	10000	10000	11500	11400	104	102	70-130	1	20	
Magnesium	ug/L	31400	10000	10000	40800	40400	94	91	70-130	1	20	
Manganese	ug/L	588	1000	1000	1610	1590	102	100	70-130	1	20	
Potassium	ug/L	6370	10000	10000	16400	16100	100	97	70-130	2	20	
Sodium	ug/L	4930	10000	10000	15100	14900	102	100	70-130	1	20	

MATRIX SPIKE SAMPLE: 3630189

Parameter	Units	60464704007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	1000	1060	96	70-130	
Calcium	ug/L	148000	10000	154000	60	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

MATRIX SPIKE SAMPLE: 3630189

Parameter	Units	60464704007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5470	10000	15900	105	70-130	
Magnesium	ug/L	31900	10000	40600	86	70-130	
Manganese	ug/L	466	1000	1490	102	70-130	
Potassium	ug/L	6280	10000	16200	99	70-130	
Sodium	ug/L	5440	10000	15600	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 916809
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

METHOD BLANK: 3630190 Matrix: Water
Associated Lab Samples: 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	12/13/24 14:50	
Calcium	ug/L	<26.9	200	26.9	12/13/24 14:50	
Iron	ug/L	<9.1	50.0	9.1	12/13/24 14:50	
Magnesium	ug/L	<20.1	50.0	20.1	12/13/24 14:50	
Manganese	ug/L	<0.39	5.0	0.39	12/13/24 14:50	
Potassium	ug/L	<69.7	500	69.7	12/13/24 14:50	
Sodium	ug/L	<115	500	115	12/13/24 14:50	

LABORATORY CONTROL SAMPLE: 3630191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	915	92	85-115	
Calcium	ug/L	10000	9670	97	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	9200	92	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	9140	91	85-115	
Sodium	ug/L	10000	9380	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3630192 3630193

Parameter	Units	60464795002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	7410	1000	1000	8220	8240	81	83	70-130	0	20	
Calcium	ug/L	342000	10000	10000	345000	347000	34	52	70-130	1	20	M1
Iron	ug/L	<9.1	10000	10000	10100	10200	101	102	70-130	1	20	
Magnesium	ug/L	82400	10000	10000	90100	90100	76	77	70-130	0	20	
Manganese	ug/L	1790	1000	1000	2720	2760	93	97	70-130	1	20	
Potassium	ug/L	5620	10000	10000	15000	15100	94	94	70-130	1	20	
Sodium	ug/L	70500	10000	10000	78000	79200	75	86	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917055
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60464699005

METHOD BLANK: 3631008 Matrix: Water
Associated Lab Samples: 60464699005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	12/04/24 16:45	
Calcium	ug/L	<26.9	200	26.9	12/04/24 16:45	
Iron	ug/L	<9.1	50.0	9.1	12/04/24 16:45	
Magnesium	ug/L	<20.1	50.0	20.1	12/04/24 16:45	
Manganese	ug/L	<0.39	5.0	0.39	12/04/24 16:45	
Potassium	ug/L	<69.7	500	69.7	12/04/24 16:45	
Sodium	ug/L	<115	500	115	12/04/24 16:45	

LABORATORY CONTROL SAMPLE: 3631009

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	972	97	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10400	104	85-115	
Magnesium	ug/L	10000	9850	99	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3631010 3631011

Parameter	Units	60464850002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	106	1000	1000	1010	1080	90	98	70-130	7	20	
Calcium	ug/L	93300	10000	10000	95600	101000	23	72	70-130	5	20	M1
Iron	ug/L	155	10000	10000	9770	10600	96	105	70-130	8	20	
Magnesium	ug/L	15900	10000	10000	23700	25100	78	92	70-130	6	20	
Manganese	ug/L	131	1000	1000	1080	1160	95	103	70-130	7	20	
Potassium	ug/L	4830	10000	10000	13900	14700	91	99	70-130	6	20	
Sodium	ug/L	133000	10000	10000	131000	138000	-11	51	70-130	5	20	M1

MATRIX SPIKE SAMPLE: 3631012

Parameter	Units	60464881001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	ND	1000	1010	97	70-130	
Calcium	ug/L	287000	10000	303000	164	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

MATRIX SPIKE SAMPLE: 3631012

Parameter	Units	60464881001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	2970	10000	13600	107	70-130	
Magnesium	ug/L	2840	10000	12200	94	70-130	
Manganese	ug/L	107	1000	1150	104	70-130	
Potassium	ug/L	40600	10000	52000	114	70-130	
Sodium	ug/L	57600	10000	69700	122	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917371
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014, 60464795007, 60464795008

METHOD BLANK: 3632816 Matrix: Water
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014, 60464795007, 60464795008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	12/10/24 11:09	
Calcium	ug/L	<26.9	200	26.9	12/10/24 11:09	
Iron	ug/L	<9.1	50.0	9.1	12/10/24 11:09	
Magnesium	ug/L	<20.1	50.0	20.1	12/10/24 11:09	
Manganese	ug/L	<0.39	5.0	0.39	12/10/24 11:09	
Potassium	ug/L	<69.7	500	69.7	12/10/24 11:09	
Sodium	ug/L	<115	500	115	12/10/24 11:09	

LABORATORY CONTROL SAMPLE: 3632817

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	972	97	85-115	
Calcium	ug/L	10000	10300	103	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1070	107	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3632818 3632819

Parameter	Units	60464699019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	56.8J	1000	1000	1040	1040	98	99	70-130	0	20	
Calcium	ug/L	115000	10000	10000	129000	127000	148	119	70-130	2	20	M1
Iron	ug/L	6100	10000	10000	16700	16700	106	106	70-130	0	20	
Magnesium	ug/L	27700	10000	10000	38800	37700	111	101	70-130	3	20	
Manganese	ug/L	395	1000	1000	1450	1440	106	105	70-130	1	20	
Potassium	ug/L	3270	10000	10000	13500	13600	103	104	70-130	1	20	
Sodium	ug/L	6960	10000	10000	17300	17200	104	103	70-130	1	20	

MATRIX SPIKE SAMPLE: 3632820

Parameter	Units	60464699018 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	55.2J	1000	1050	99	70-130	
Calcium	ug/L	127000	10000	138000	110	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

MATRIX SPIKE SAMPLE: 3632820

Parameter	Units	60464699018 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	8380	10000	19100	107	70-130	
Magnesium	ug/L	30800	10000	41500	106	70-130	
Manganese	ug/L	714	1000	1790	108	70-130	
Potassium	ug/L	4270	10000	14600	103	70-130	
Sodium	ug/L	7240	10000	17700	105	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917909
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60464699005

METHOD BLANK: 3634992 Matrix: Water
Associated Lab Samples: 60464699005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	11/27/24 15:47	

LABORATORY CONTROL SAMPLE: 3634993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	480	96	90-110	

SAMPLE DUPLICATE: 3634994

Parameter	Units	60464293013 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	343	347	1	10	

SAMPLE DUPLICATE: 3634995

Parameter	Units	60464699001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	337	339	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917910
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699006, 60464699007, 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

METHOD BLANK: 3634996 Matrix: Water
Associated Lab Samples: 60464699006, 60464699007, 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	11/27/24 18:31	

LABORATORY CONTROL SAMPLE: 3634997

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	483	97	90-110	

SAMPLE DUPLICATE: 3634998

Parameter	Units	60464704004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	442	443	0	10	

SAMPLE DUPLICATE: 3634999

Parameter	Units	60464795002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	424	415	2	10	

SAMPLE DUPLICATE: 3635000

Parameter	Units	60464769007 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	351	351	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 918130
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464795007, 60464795008

METHOD BLANK: 3635810 Matrix: Water
Associated Lab Samples: 60464795007, 60464795008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	12/02/24 15:36	

LABORATORY CONTROL SAMPLE: 3635811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	481	96	90-110	

SAMPLE DUPLICATE: 3635812

Parameter	Units	60464769008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	301	294	2	10	

SAMPLE DUPLICATE: 3635813

Parameter	Units	60465166003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	428	438	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 918131 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

METHOD BLANK: 3635814 Matrix: Water
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	12/02/24 16:17	

LABORATORY CONTROL SAMPLE: 3635815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	487	97	90-110	

SAMPLE DUPLICATE: 3635816

Parameter	Units	60464699019 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	306	306	0	10	

SAMPLE DUPLICATE: 3635817

Parameter	Units	60465156001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	329	347	5	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 916954
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699005

METHOD BLANK: 3630622 Matrix: Water
Associated Lab Samples: 60464699005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/19/24 12:16	

LABORATORY CONTROL SAMPLE: 3630623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 3630624

Parameter	Units	60464559003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	140	140	0	10	

SAMPLE DUPLICATE: 3630625

Parameter	Units	60464294022 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	647	664	3	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917114
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699006, 60464699007, 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

METHOD BLANK: 3631336 Matrix: Water
Associated Lab Samples: 60464699006, 60464699007, 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/20/24 12:07	

LABORATORY CONTROL SAMPLE: 3631337

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

SAMPLE DUPLICATE: 3631338

Parameter	Units	60464704004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	522	529	1	10	

SAMPLE DUPLICATE: 3631347

Parameter	Units	60464795002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1870	1820	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917791
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464795007, 60464795008

METHOD BLANK: 3634577 Matrix: Water
Associated Lab Samples: 60464795007, 60464795008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/26/24 15:36	

LABORATORY CONTROL SAMPLE: 3634578

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	979	98	80-120	

SAMPLE DUPLICATE: 3634579

Parameter	Units	60464925008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6220	6380	3	10	

SAMPLE DUPLICATE: 3634580

Parameter	Units	60465166003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	556	553	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917911
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

METHOD BLANK: 3635001 Matrix: Water
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/27/24 17:56	

LABORATORY CONTROL SAMPLE: 3635002

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	992	99	80-120	

SAMPLE DUPLICATE: 3635003

Parameter	Units	60464699019 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	494	499	1	10	

SAMPLE DUPLICATE: 3635004

Parameter	Units	60465156001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	460	452	2	10	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 917889
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

METHOD BLANK: 3634911 Matrix: Water
Associated Lab Samples: 60464795001, 60464795002, 60464795003, 60464795004, 60464795005, 60464795006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/27/24 06:10	
Fluoride	mg/L	<0.12	0.20	0.12	11/27/24 06:10	
Sulfate	mg/L	<0.55	1.0	0.55	11/27/24 06:10	

LABORATORY CONTROL SAMPLE: 3634912

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3634913 3634914

Parameter	Units	60464795002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	205	100	100	289	292	84	86	80-120	1	15	
Fluoride	mg/L	0.48	2.5	2.5	1.9	4.0	58	141	80-120	70	15	M1,R1
Sulfate	mg/L	745	250	250	983	993	95	99	80-120	1	15	

MATRIX SPIKE SAMPLE: 3634916

Parameter	Units	60464938002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	107	250	338	92	80-120	
Fluoride	mg/L	ND	125	129	103	80-120	
Sulfate	mg/L	52.3	250	297	98	80-120	

SAMPLE DUPLICATE: 3634915

Parameter	Units	60464795002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	205	208	1	15	
Fluoride	mg/L	0.48	0.48	0	15	
Sulfate	mg/L	745	740	1	15	

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 918072
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464795007, 60464795008

METHOD BLANK: 3635661 Matrix: Water
Associated Lab Samples: 60464795007, 60464795008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	12/03/24 09:33	
Fluoride	mg/L	<0.12	0.20	0.12	12/03/24 09:33	
Sulfate	mg/L	<0.55	1.0	0.55	12/03/24 09:33	

LABORATORY CONTROL SAMPLE: 3635662

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	2.5	2.4	94	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3635663 3635664

Parameter	Units	60465063007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.0	10	10	26.6	30.2	87	122	80-120	13	15	M1
Fluoride	mg/L	0.43	5	5	6.4	8.6	119	164	80-120	30	15	M1,R1
Sulfate	mg/L	116	10	10	129	132	128	160	80-120	3	15	E,M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3635666 3635667

Parameter	Units	60465156001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.8	5	5	9.3	8.8	111	99	80-120	6	15	
Fluoride	mg/L	0.37	2.5	2.5	3.7	3.3	132	118	80-120	10	15	M1
Sulfate	mg/L	63.3	50	50	114	110	101	93	80-120	4	15	

SAMPLE DUPLICATE: 3635665

Parameter	Units	60465063007 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	18.0	18.1	1	15	
Fluoride	mg/L	0.43	0.43	0	15	
Sulfate	mg/L	116	104	11	15	E

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

SAMPLE DUPLICATE: 3635668

Parameter	Units	60465156001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	3.8	3.8	0	15	
Fluoride	mg/L	0.37	0.38	3	15	
Sulfate	mg/L	63.3	63.2	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 919474
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699005, 60464699006, 60464699007

METHOD BLANK: 3641620 Matrix: Water
Associated Lab Samples: 60464699005, 60464699006, 60464699007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	12/14/24 21:39	
Fluoride	mg/L	<0.12	0.20	0.12	12/14/24 21:39	IC
Sulfate	mg/L	<0.55	1.0	0.55	12/14/24 21:39	

LABORATORY CONTROL SAMPLE: 3641621

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	IC
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3641622 3641623

Parameter	Units	60465425001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	397	500	500	848	847	90	90	80-120	0	15	
Fluoride	mg/L	ND	50	50	50.9	52.0	102	104	80-120	2	15	IC
Sulfate	mg/L	237	100	100	325	325	88	88	80-120	0	15	

MATRIX SPIKE SAMPLE: 3641624

Parameter	Units	60464699007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.4	5	10.4	80	80-120	
Fluoride	mg/L	0.33	2.5	3.1	111	80-120	IC
Sulfate	mg/L	547	250	793	98	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60464795

QC Batch: 919641
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

METHOD BLANK: 3642615 Matrix: Water
Associated Lab Samples: 60464699011, 60464699012, 60464699013, 60464699014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	12/14/24 04:07	
Fluoride	mg/L	<0.12	0.20	0.12	12/14/24 04:07	CL
Sulfate	mg/L	<0.55	1.0	0.55	12/14/24 04:07	

LABORATORY CONTROL SAMPLE: 3642616

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	2.3	92	90-110	CL
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3642617 3642618

Parameter	Units	60464769007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	5.6	5	5	10.9	9.8	107	85	80-120	11	15	
Fluoride	mg/L	<0.12	2.5	2.5	3.8	3.1	151	126	80-120	18	15	CL,M1, R1
Sulfate	mg/L	33.6	50	50	92.1	100	117	133	80-120	8	15	M1

MATRIX SPIKE SAMPLE: 3642620

Parameter	Units	60464769012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.6	5	16.1	72	80-120	M1
Fluoride	mg/L	<0.12	2.5	3.0	120	80-120	
Sulfate	mg/L	19.7	50	72.0	105	80-120	

SAMPLE DUPLICATE: 3642619

Parameter	Units	60464769007 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	5.6	5.6	0	15	
Fluoride	mg/L	<0.12	<0.12		15	CL
Sulfate	mg/L	33.6	31.7	6	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SCPB
Pace Project No.: 60464795

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

CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
IC	The initial calibration for this compound was outside of method control limits. The result is estimated.
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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60464795

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60464699005	**S-LMW-1S**	EPA 200.7	917055	EPA 200.7	917177
60464699006	**S-LMW-5S**	EPA 200.7	916806	EPA 200.7	916863
60464699007	**S-LMW-6S**	EPA 200.7	916806	EPA 200.7	916863
60464795001	**S-LMW-7S**	EPA 200.7	916806	EPA 200.7	916863
60464795002	**S-LMW-8S**	EPA 200.7	916809	EPA 200.7	916854
60464795003	**S-LMW-9S**	EPA 200.7	916809	EPA 200.7	916854
60464795004	**S-LMW-DUP-1**	EPA 200.7	916809	EPA 200.7	916854
60464795005	**S-LMW-DUP-2**	EPA 200.7	916809	EPA 200.7	916854
60464795006	**S-LMW-FB-1**	EPA 200.7	916809	EPA 200.7	916854
60464795007	**S-LMW-3S**	EPA 200.7	917371	EPA 200.7	917460
60464795008	**S-LMW-FB-2**	EPA 200.7	917371	EPA 200.7	917460
60464699011	**S-BMW-1S**	EPA 200.7	917371	EPA 200.7	917460
60464699012	**S-BMW-3S**	EPA 200.7	917371	EPA 200.7	917460
60464699013	**S-LMW-2S**	EPA 200.7	917371	EPA 200.7	917460
60464699014	**S-LMW-4S**	EPA 200.7	917371	EPA 200.7	917460
60464699005	**S-LMW-1S**	SM 2320B	917909		
60464699006	**S-LMW-5S**	SM 2320B	917910		
60464699007	**S-LMW-6S**	SM 2320B	917910		
60464795001	**S-LMW-7S**	SM 2320B	917910		
60464795002	**S-LMW-8S**	SM 2320B	917910		
60464795003	**S-LMW-9S**	SM 2320B	917910		
60464795004	**S-LMW-DUP-1**	SM 2320B	917910		
60464795005	**S-LMW-DUP-2**	SM 2320B	917910		
60464795006	**S-LMW-FB-1**	SM 2320B	917910		
60464795007	**S-LMW-3S**	SM 2320B	918130		
60464795008	**S-LMW-FB-2**	SM 2320B	918130		
60464699011	**S-BMW-1S**	SM 2320B	918131		
60464699012	**S-BMW-3S**	SM 2320B	918131		
60464699013	**S-LMW-2S**	SM 2320B	918131		
60464699014	**S-LMW-4S**	SM 2320B	918131		
60464699005	**S-LMW-1S**	SM 2540C	916954		
60464699006	**S-LMW-5S**	SM 2540C	917114		
60464699007	**S-LMW-6S**	SM 2540C	917114		
60464795001	**S-LMW-7S**	SM 2540C	917114		
60464795002	**S-LMW-8S**	SM 2540C	917114		
60464795003	**S-LMW-9S**	SM 2540C	917114		
60464795004	**S-LMW-DUP-1**	SM 2540C	917114		
60464795005	**S-LMW-DUP-2**	SM 2540C	917114		
60464795006	**S-LMW-FB-1**	SM 2540C	917114		
60464795007	**S-LMW-3S**	SM 2540C	917791		
60464795008	**S-LMW-FB-2**	SM 2540C	917791		
60464699011	**S-BMW-1S**	SM 2540C	917911		
60464699012	**S-BMW-3S**	SM 2540C	917911		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60464795

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60464699013	**S-LMW-2S**	SM 2540C	917911		
60464699014	**S-LMW-4S**	SM 2540C	917911		
60464699005	**S-LMW-1S**	EPA 300.0	919474		
60464699006	**S-LMW-5S**	EPA 300.0	919474		
60464699007	**S-LMW-6S**	EPA 300.0	919474		
60464795001	**S-LMW-7S**	EPA 300.0	917889		
60464795002	**S-LMW-8S**	EPA 300.0	917889		
60464795003	**S-LMW-9S**	EPA 300.0	917889		
60464795004	**S-LMW-DUP-1**	EPA 300.0	917889		
60464795005	**S-LMW-DUP-2**	EPA 300.0	917889		
60464795006	**S-LMW-FB-1**	EPA 300.0	917889		
60464795007	**S-LMW-3S**	EPA 300.0	918072		
60464795008	**S-LMW-FB-2**	EPA 300.0	918072		
60464699011	**S-BMW-1S**	EPA 300.0	919641		
60464699012	**S-BMW-3S**	EPA 300.0	919641		
60464699013	**S-LMW-2S**	EPA 300.0	919641		
60464699014	**S-LMW-4S**	EPA 300.0	919641		

WO# : 60464795

60464795

Pace	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: T298 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.4/2.0 **Corr. Factor** -0.1 **Corrected** 1.3/1.9

Date and initials of person examining contents: AV 11/18/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 82727	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

WO# : 60464795
PM: JLS **Due Date: 12/04/24**
CLIENT: Rocksmith

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		CC E-Mail:	
Customer Project #:	COC#9		
Project Name:	AMEREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET
County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

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

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

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

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

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3163157

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment	Preservation non-conformance identified for sample
S-LMW-3S	WT													
S-LMW-7S	WT	G			11/15/24	1135	2			✓	✓	✓		
S-LMW-8S	WT	G			11/15/24	1029	2			✓	✓	✓		
S-LMW-9S	WT	G			11/15/24	0913	2			✓	✓	✓		
S-LMW-DUP-1	WT	G			11/15/24	—	2			✓	✓	✓		
S-LMW-DUP-2	WT	G			11/16/24	—	2			✓	✓	✓		
S-LMW-FB-1	WT	G			11/15/24	1150	2			✓	✓	✓		
S-LMW-FB-2	WT													
S-LMW-MS-1	WT	G			11/15/24	1029	2			✓	✓	✓		
S-LMW-MSD-2	WT	G			11/15/24	1029	2			✓	✓	✓		

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

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp (°C)	Corrected Temp (°C)	On Ice:
2	T298	-0.1	1.3	1.9	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	11/15/24 1510		11/16/24 0534	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 2

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

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all Relevant Fields

WO# : 60464795

PM: JLS **Due Date: 12/04/24**

CLIENT: Rocksmith

Company Name:	Mercy Hospital Lincoln, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 9	Invoice To:	Mark Haddock
Project Name:	AMI REN SCPB	Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET		County / State origin of sample(s):	Missouri

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

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

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

Date Results Requested:

DW PWSID # or WW Permit # as applicable:

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

Analysis:

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) 3 Gram, (8) TerraCore, (9) 50mL, (10) Other

*** Preservative Types: (1) None, (2) HCl, (3) H2NO3, (4) H2SO4, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only

Proj. Mgr: Jamie Church

AcctNum / Client ID:

Table #:

Profile / Template: 15856

Prelog / Bottle Ord. ID: EZ 3163157

Preservation pH confirmation identified for samples

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment
S-LMW-6S	WT	G			11/15/24	1248	2			✓	✓	✓	
S-LMW-5S	WT	G			11/15/24	1340	2			✓	✓	✓	
S-LMW-1S	WT	G			11/14/24	1606	2			✓	✓	✓	

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

Collected By: (Printed Name) John Rasmussen

Signature:

Customer Remarks / Special Conditions / Possible Hazards

# Coolers:	Thermometer ID	Correction Factor (°C)	Obs. Temp. (°C)	Corrected Temp. (°C)	Dis Kit
2	T198	-0.1		1-3/1-9	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	11/15/24 1510		11/16/24 0534	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 2 of 2

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

ENV-FRM-CORQ-0019_v02_110123 ©

Client: Rocksmith Geoeng

Profile#: 3163157

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																																
2	WT																		1				1									
3	↓																		3				3									
4	↓																		1				1									
5	↓																		1				1									
6	↓																		1				1									
7	↓																		1				1									
8																			/													
9																			RN 11/18													
10																																
11																																
12																																

Container Codes

Glass

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

Plastic

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

Misc.

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

Matrix

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

Work Order Numbe

WO#:60464795

PM: JLS Due Date: 12/04/24

CLIENT: Rocksmith

WO# : 60464795

60464795

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

Client Name: Rocksmith Geoeng

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

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

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

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

Thermometer Used: T298 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.8 **Corr. Factor** -0.1 **Corrected** 1.7

Date and initials of person examining contents: 9/11/24 hy

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 8E721	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60464795

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC#9	Invoice To:	Mark Haddock
Project Name:	AMEREN SCPB	Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

(PWS ID # or WW Permit # as applicable)

Date Results Requested:

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

Analysis:

Specify Container Size **: 1 1 3

Identify Container Preservative Type***: 1 1 2

Analysis Requested

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

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

Lab Use Only

Proj. Mgr: Jamie Church

AcctNum / Client ID:

Table #:

Profile / Template: 15856

Prelog / Bottle Ord. ID: EZ 3163157

Sample Comment

Preservation non-conformance documented for sample:

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)	Sample Comment
S-LMW-3S	WT	G			11-19-24	0958	2			✓	✓	✓	
~~S-LMW-7S~~ S-LMW-2S	WT	G			"	1227	2			✓	✓	✓	
~~S-LMW-8S~~ S-LMW-4S	WT	G			"	1113	2			✓	✓	✓	
S-LMW-9S	WT												
S-LMW-DUP-1	WT												
S-LMW-DUP-2	WT												
S-LMW-FB-1	WT												
S-LMW-FB-2	WT	G			11-19-24	0953	2			✓	✓	✓	
S-LMW-MS-1	WT												
S-LMW-MSD-2	WT												

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

Collected By (Printed Name): John Rasmussen

Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C):	Corrected Temp. (°C):	On Ice
1	T298	-0.1	1.8	1.7	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Rocksmith	11/20/24 1530		11/21/24 0745
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

Delivered by: [ ] In Person [ ] Courier [ ] FedEX [ ] UPS [ ] Other

Page: 1 of 2

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

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60464795

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 9		
Project Name:	AMLREN SCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

Specify Container Size **: 1 1 3

Identify Container Preservative Type***: 1 1 2

**Container Size: (1) 1l, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 50mL, (10) Other

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

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15856
Prelog / Bottle Ord. ID: EZ 3163157

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	App III and Cat/An Metals (200.7)*	Sample Comment	Preservation non-conformance identified for sample
S-BMW-1S	WT	G			11/20/24	0900	2			✓	✓	✓		
S-BMW-3S	WT	G			"	1143	2							

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

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
1	T198	-0.1	1.8	1.7	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Rocksmith	11/20/24 1530		11/21/24 0745
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

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

Page: 2 of 2

DC#_Title: ENV-FRM-LENE-0001 v07_Sample Container Count
Effective Date: 7/12/2024

Do not log samples on page 2 COC.

Client: Rocksmith Geoeng

Profile/EZ #: only print what you log.

Site:

Notes: Append to 60464795

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3B	BP3Z	WPDU	ZPLC	Other		
1	WT																		1				1									
2	(DO NOT LOG)																															
3																																
4																																
5																																
6																																
7																																
8	WT																		1				1									
9																																
10																																
11																																
12																																

Container Codes

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

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

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

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

Work Order Number: 60464795

Memorandum

January 22, 2025

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 – SCPB – Data Package 60464795**		

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).
- When an initial laboratory calibration was outside of method control limits, 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 Manager: J. Ingram
Project Name: Ameren SCPB
Project Number: 23009-24
Reviewer: G. Morey
Validation Date: 01/22/2025

Laboratory: Pace Analytical
SDG #: 60464795
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-LMW-7S, S-LMW-8S, S-LMW-9S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-3S, S-LMW-FB-2, S-LMW-1S, S-LMW-2S S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			11/15/24-11/20/24
b) Sampling team indicated?	x			JDQ, GTM
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	No lab narrative.

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	S-LMW-DUP-1 @ S-LMW-9S
b) Were field dup. precision criteria met (note RPD)?	☐	☒	☐	S-LMW-DUP-2 @ S-LMW-7S
c) Were lab duplicates analyzed (note original and duplicate samples)?	☒	☐	☐	See Notes
d) Were lab dup. precision criteria met (note RPD)?	☒	☒	☐	

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

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

Comments/Notes:

General:

Chloride, fluoride, sulfate, and total dissolved solids analyzed outside of hold time controls for several samples, results qualified as estimates.

Initial calibration for fluoride outside method control limits for several samples, results qualified as estimates.

Chloride and sulfate diluted in several samples, no qualifications necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Field Blanks:

S-LMW-FB-1 @ S-LMW-7S: No detections in field blank.

S-LMW-FB-2 @ S-LMW-8S: fluoride (0.23). Result > RL and < 10x blank, result qualified as estimate.

Duplicates:

S-LMW-DUP-1 @ S-LMW-9S: control limit (20%) exceeded for fluoride (32%) and iron (30%), results qualified as estimates.

S-LMW-DUP-2 @ S-LMW-7S: all RPD's within control limits.

Lab Duplicate max RPD: 15%: chloride, fluoride, and sulfate; 10%: TDS and alkalinity.

MS/MSD:

3630189: MS recovery low for calcium. Associated with unrelated sample, no qualification necessary.

3630192/3630193: MS/MSD recovery low for calcium, RPD within control. Associated with sample -002, result qualified as estimate.

3631010/3631011: MS recovery low for calcium, MSD and RPD within control. MS/MSD recovery low for sodium, RPD within control. Associated with unrelated sample, no qualification necessary.

3632818/3632819: MS recovery high for calcium; MSD and RPD within control. Associated with unrelated sample, no qualification necessary.

3634913/3634914: MS recovery low, MSD recovery high, and RPD outside of control for fluoride. Associated with sample -002. Result qualified as estimate.

3635663/3635664: MSD recovery high for chloride. MS recovery and RPD within control. MS/MSD recovery high and RPD outside control for fluoride. MS/MSD recovery high for sulfate, RPD within control. Associated with unrelated sample, no qualification necessary.

3635666/3635667: MS recovery high for fluoride, MSD recovery and RPD within control. Associated with unrelated sample, no qualification necessary.

3642617/3642618: MS/MSD recovery high for fluoride, RPD outside of control. MSD recovery high for sulfate, MS recovery and RPD within control. Associated with unrelated sample, no qualification necessary.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chloride	175	J	Analyzed outside of hold time controls
"	Fluoride	0.34	J	"
"	Sulfate	108	J	Analyzed outside of hold time controls
S-LMW-2S	TDS	892	J	"
S-LMW-4S	"	785	J	"
S-LMW-5S	Chloride	10.6	J	"
"	Fluoride	0.37	J	Analyzed outside of hold time controls, initial calibration outside limits
"	Sulfate	915	J	Analyzed outside of hold time controls
S-LMW-6S	Chloride	6.4	J	"
"	Fluoride	0.33	J	Analyzed outside of hold time controls, initial calibration outside limits
"	Sulfate	547	J	"
S-LMW-8S	Calcium	342000	J-	MS/MSD recovery low, RPD OK
"	Fluoride	0.48	J	MS recovery low, MSD recovery high, RPD out
S-LMW-DUP-1	Fluoride	0.29	J	Field duplicate RPD outside control limit
S-LMW-9S	"	0.21	J	"
S-LMW-DUP-1	Iron	21.3	J	"
S-LMW-9S	"	15.8	J	"
S-LMW-8S	Fluoride	0.48	J	Detected in field blank, result < 10x blank

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: Grant Morey Date: 01/22/2025

Appendix B

Alternative Source Demonstration – November 2023 Sampling Event

Technical Memorandum

June 24, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:** 23009-24	
From:	Rocksmith Geoengineering - Mark Haddock, P.E., R.G., Jeff Ingram, R.G.	**Email:** jeff.ingram@rocksmithgeo.com	
RE:	**SCPB – ALTERNATIVE SOURCE DEMONSTRATION – NOVEMBER 2023 SAMPLING EVENT**		

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), Rocksmith Geoengineering, LLC (Rocksmith) has prepared this Technical Memorandum to show that Statistically Significant Increases (SSIs) identified at Ameren Missouri's (Ameren) Sioux Energy Center (SEC) fly ash surface impoundment (SCPB) are the result from an alternative source and are not related to impacts from SCPB. This SCPB Alternative Source Demonstration (ASD) satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

2.0 BACKGROUND

The first round of Detection Monitoring was completed during November 2017 at the SEC's SCPB CCR Unit in St. Charles County, Missouri. This sampling was completed in accordance with the CCR Rule, and SSIs were identified and verified. In February/March 2018, additional drilling and detailed analysis of results were completed, and it was determined that the SSIs in the CCR Rule groundwater monitoring wells at the SCPB were not caused by impacts from the SCPB. Based on the previous ASDs prepared for the SCPB, the SSIs observed in the SCPB wells were caused by the adjacent SCPA bottom ash surface impoundment. This conclusion was supported by lines of evidence (LOEs) as follows.

- Geochemical Signatures
- USEPA FALCON Analysis
- Groundwater Flow Directions
- Construction of the SCPB

Previous ASD reports may be found in the SCPB Annual Groundwater Monitoring and Corrective Action Reports available on Ameren's Publicly available website (https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports).

3.0 NOVEMBER 2023 SAMPLING EVENT

A summary of the November 2023 sampling results is provided in **Table 1**. As discussed in **Section 2.0**, there are several LOEs presented in the previous ASDs that demonstrate impacts around the SCPB are caused by the SCPA and not the SCPB. Both CCR units are now capped and closed with a geomembrane cover system and the same LOEs are still present at the site. The following summarizes the LOEs that indicate exceedances in the November 2023 sampling event around the SCPB are from the SCPA and not the SCPB using current monitoring data through the November 2023 sampling event.

- **Geochemical Signatures** – As reflected on the piper diagram provided in **Figure 1**, SCPA pore-water has a distinctly different signature than the pore-water from the SCPB. CCR groundwater samples in monitoring wells with SSIs plot on the piper diagrams in a location between the SCPA pore-water zone and the background groundwater zone, indicating that well water chemistry is a mixture of unaffected groundwater and groundwater impacted by the SCPA. None of the downgradient monitoring wells reflect a geochemical signature in the SCPB pore-water zone, or in the area that is strictly the SCPB mixing zone.

- **USEPA FALCON ANALYSIS** – The USEPA FALCON method compared constituent fingerprints from the downgradient monitoring wells with those of background groundwater, SCPB pore-water, and SCPA pore-water. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A**. An updated calculation using data from the November 2023 sampling event was completed and a summary of the results is provided in Table 5 of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both the SCPA pore-water and background groundwater, while there is low correlation between downgradient monitoring well data and SCPB pore-water. These same correlations were found at depth within the alluvial aquifer.

- **Groundwater Flow Direction** – Potentiometric surface mapping demonstrates that groundwater flow direction is variable and can temporarily flow in multiple directions. Generally, groundwater flows to the east-southeast depending on the river level in the adjacent Mississippi and Missouri Rivers. Recently, lower than average Missouri River levels in 2022 and 2023 have displayed a more southward component of flow. Typical groundwater flow direction supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells relative to both the SCPA and SCPB.

- **SCPB Construction** - The SCPB was constructed in 1993 with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 419 feet above mean sea level (FT MSL). The low permeability HDPE liner system in the SCPB is a barrier to the migration of CCR influenced liquids and provides containment for CCR. The SCPA began operation in 1967 and has a bottom elevation estimated to be 370 FT MSL, which is much deeper than the SCPB. In addition to the distinct pore-water fingerprint for SCPA relative to SCPB, there are elevated concentrations of CCR indicators in the shallow, intermediate (middle), and deep alluvial zones. Thus, elevated concentrations are not isolated to the shallow zone, which would be the most likely zone influenced if leakage from the SCPB had occurred. The impacts to the intermediate and deep alluvial zones are most likely from the SCPA, where the base elevation extends into deeper groundwater zones in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence all demonstrate that SSIs reported for the November 2023 Sampling Event for the SCPB CCR Unit were not caused by impacts from the SCPB surface impoundment. The SCPA surface impoundment, located immediately adjacent and upgradient to the SCPB, is the source of the SSIs for groundwater in the SCPB monitoring well network.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – November 2023 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *SCPB – Alternative Source Demonstration – November 2023 Sampling Event* 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, PE, RG

Principal Engineer, Senior Partner

Attachments: Table 1 – November 2023 Detection Monitoring Results
Figure 1 – SCPB Piper Diagram for November 2023
Appendix A – FALCON Analysis Calculation Package

Tables

Table 1
November 2023 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2023 Detection Monitoring Event													
DATE	NA	NA	11/10/2023	11/10/2023	11/14/2023	11/14/2023	11/13/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023	11/14/2023
pH	SU	6.515-7.42	7.04	7.14	7.30	6.91	6.63	6.72	6.89	6.82	6.82	6.70	6.59
BORON, TOTAL	µg/L	118	57.9 J	58.9 J	1,100	9,270	214	7,590	12,100	14,700	3,690	4,970	1,080
CALCIUM, TOTAL	µg/L	174,465	136,000	114,000	116,000	180,000	207,000	139,000	214,000	235,000	204,000	233,000	203,000 J
CHLORIDE, TOTAL	mg/L	13.65	7.2	13.4	68.8 J	159 J	62.6 J	5.3 J	23.8 J	9.8 J	24.4 J	77.8 J	103 J
FLUORIDE, TOTAL	mg/L	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	61.1	46.9	12.3	103 J	221 J	37.0 J	51.8 J	644 J	586 J	416 J	459 J	205 J
TOTAL DISSOLVED SOLIDS	mg/L	608.2	475	398	566	962	751	689	1,290	1,290	980	1,210	1,050
February 2024 Verification Sampling Event													
DATE	NA	NA				2/7/2024				2/7/2024			2/7/2024
pH	SU	6.515-7.42											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	174,465				198,000							143,000
CHLORIDE, TOTAL	mg/L	13.65											
FLUORIDE, TOTAL	mg/L	0.46											
SULFATE, TOTAL	mg/L	61.1											
TOTAL DISSOLVED SOLIDS	mg/L	608.2								1,720			

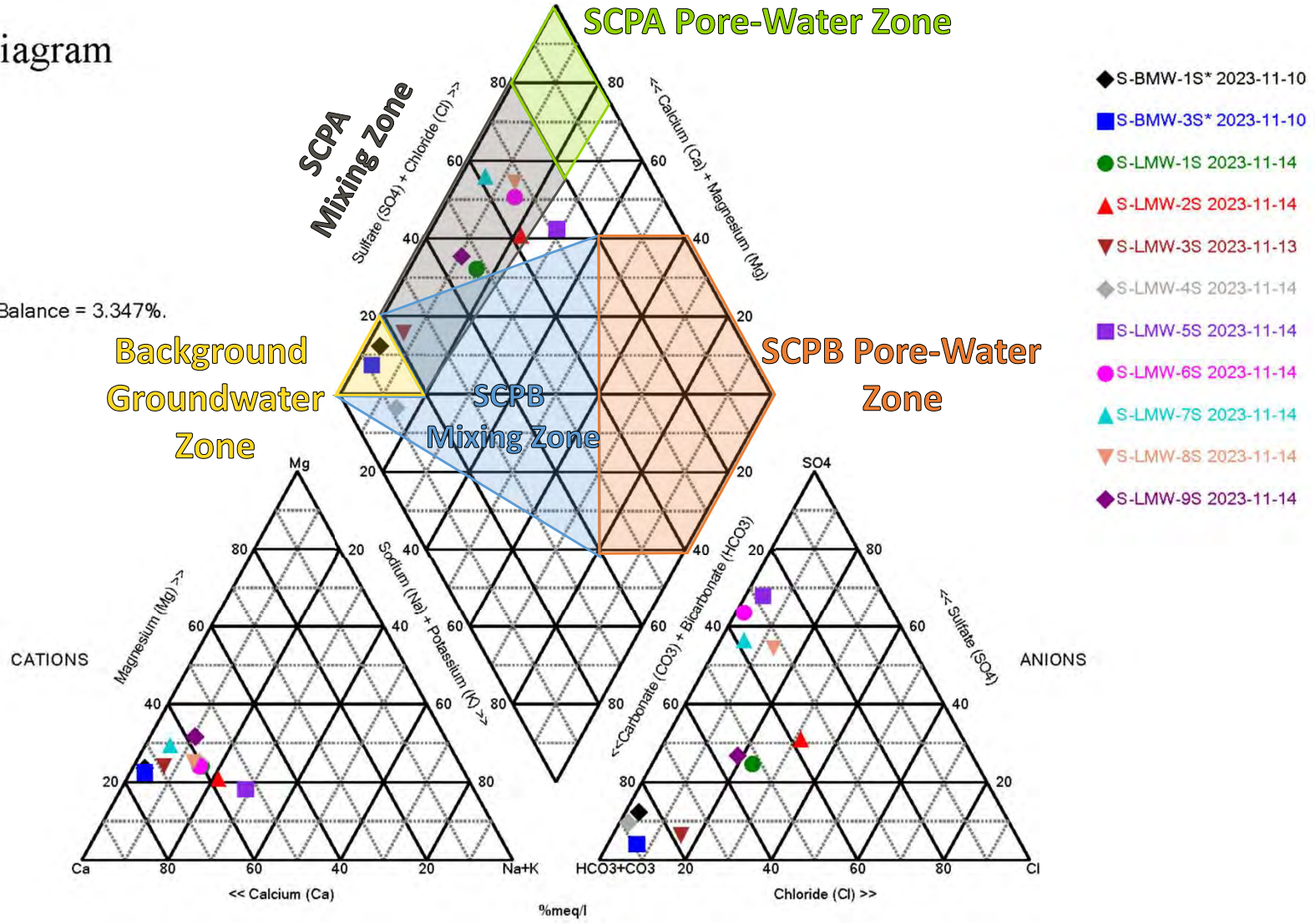
NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data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

Prepared By: GTM
Checked By: ANT
Reviewed By: MNH

Figures

Piper Diagram

Cation-Anion Balance = 3.347%.



Notes
1) Piper diagram generated using Sanitas Software.
2) %mEq/l – milliequivalents per liter

CLIENT/PROJECT **AMEREN MISSOURI** **SIOUX ENERGY CENTER**					TITLE **SCPB Piper Diagram for November 2023**	
DRAWN JSI	CHECKED GTM	REVIEWED MNH	DATE 2024-06-14		Rev No. NA	JOB NO. 23009	FIGURE **1**

Appendix A
FALCON Analysis Calculation Package

Calculation Package
June 24, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:** 23009	
From:	Rocksmith Geoengineering - Mark Haddock, P.E., R.G., Jeff Ingram R.G.	**Email:** jeff.ingram@rocksmithgeo.com	
RE:	**Appendix A – SCPB Falcon Analysis Calculation Package**		

1.0 OBJECTIVE

The objective of this analysis is to determine if there is a correlation between the ion ratio fingerprints in the SCPA pore-water, SCPB pore-water, or background groundwater with the compliance monitoring wells samples in the alluvial aquifer at the Sioux Energy Center (SEC).

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method compiles ion ratios for multiple constituents in order to develop a distinctive chemical fingerprint for each possible contaminant source and un-impacted background groundwater. These fingerprints are then correlated to well sample data downgradient of the sources and are used to characterize the source of the contaminant plume. For this analysis, background groundwater quality is derived from background well samples located approximately 0.50 to 0.75 miles west of the SCPB. Source data is from pore-water collected from piezometers within the SCPA and SCPB. Fingerprints from these three sources (background groundwater, SCPA pore-water, and SCPB pore-water) are compared to data from alluvial aquifer monitoring well sampling locations at the SEC. Data from the SCPA and SCPB pore-water are from the November 2017 ASD for the SCPB, which is available in the 2018 Annual Report for the SCPB. Data from the background and compliance monitoring wells are from the November 2023 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis is to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each water type. Constituents selected included major cation and anion constituents that represent groundwater chemistry as well as key indicators of CCR impacts. Values of the three different sources were compared to see which constituents fit the criteria. A summary table of the values used for the three sources is provided in **Table 1**. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Calcium
- Total Fluoride
- Total Boron
- Total Chloride
- Total Iron

- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized and a graphical presentation of the fingerprints was produced. These steps are provided in **Table 1** for the three different sources (background groundwater, SCPA pore-water, and SCPB pore-water), as well as each monitoring well evaluated. Correlations were then completed between the different sources to determine each source's reproducibility. Tables displaying these correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

Table 2 - Background Groundwater Correlations				
Well ID	*S-BMW-1D*	*S-BMW-1S*	*S-BMW-3D*	*S-BMW-3S*
S-BMW-1D				
S-BMW-1S	99.9%			
S-BMW-3D	100.0%	99.9%		
S-BMW-3S	99.9%	100.0%	99.8%	
Average Fingerprint Reproducibility			99.9%	

Table 3 – SCPB Pore-water Correlations

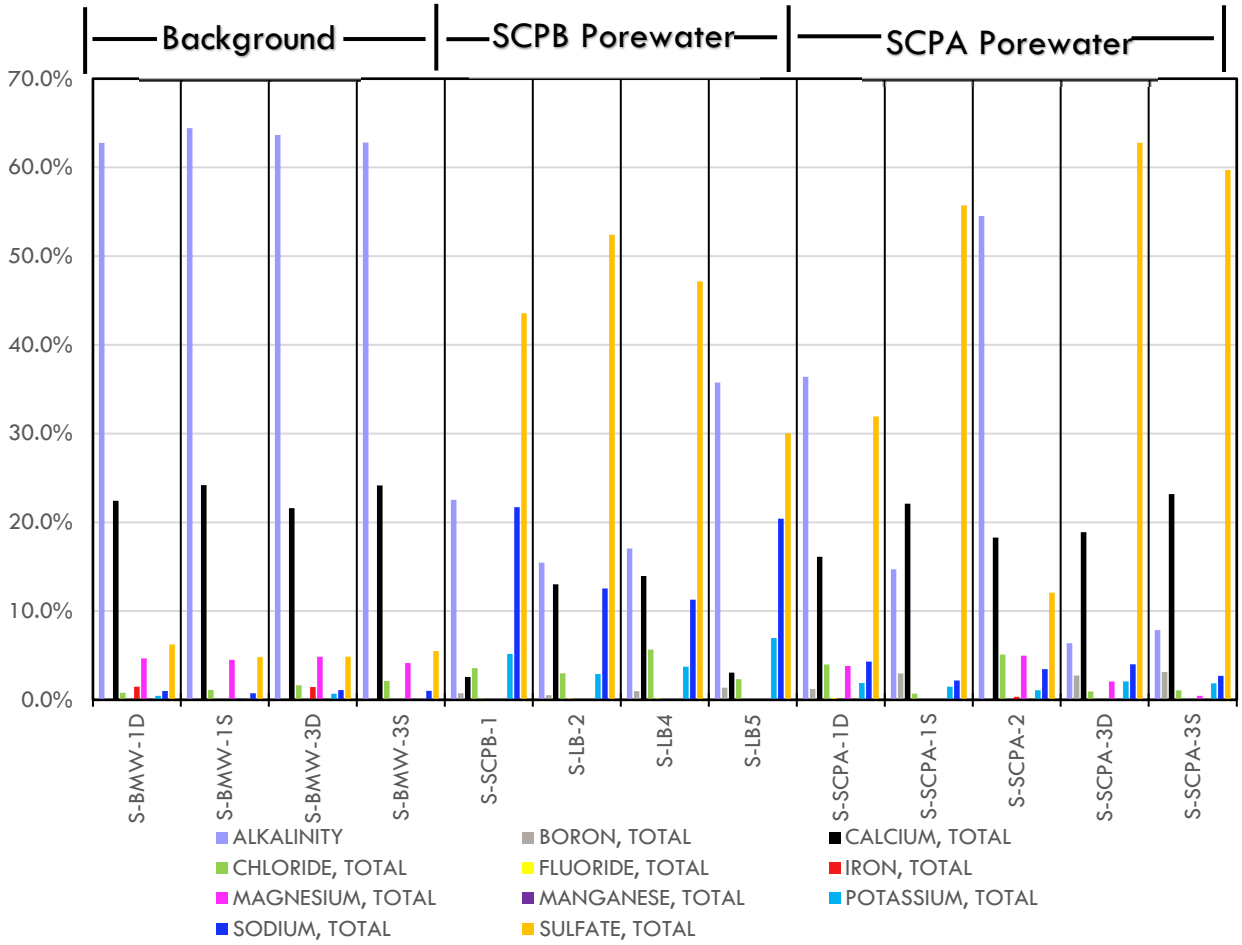
Table 3 – SCPB Pore-water Correlations				
Well ID	*S-LB-2*	*S-LB-4*	*S-LB-5*	*S-SCPB-1*
S-LB-2				
S-LB-4	99.6%			
S-LB-5	74.8%	76.9%		
S-SCPB-1	93.0%	92.8%	90.5%	
Average Fingerprint Reproducibility			87.9%	

Table 4 – SCPA Pore-water Correlations

Table 4 – SCPA Pore-water Correlations					
Well ID	*S-SCPA-1D*	*S-SCPA-1S*	*S-SCPA-2*	*S-SCPA-3D*	*S-SCPA-3S*
S-SCPA-1D					
S-SCPA-1S	78.8%				
S-SCPA-2	84.8%	35.6%			
S-SCPA-3D	67.8%	98.2%	19.1%		
S-SCPA-3S	70.3%	99.1%	23.4%	99.5%	
Average Fingerprint Reproducibility				67.7%	
Average Fingerprint Reproducibility (without SCPA-2)				85.6%	

Additionally, **Figure 1** below displays a histogram of the different source water normalizations.

Figure 1 – Histogram of Source Water Normalizations at the SEC



After reviewing the correlations for the SCPA pore-water, it is evident that there are different sources present within the SCPA which can be seen in the relatively poor correlation between water sampling points. This is likely caused by the historical placement of different types of ash in the CCR unit. SCPA-1 and SCPA-3 locations have a strong correlation and are both located in areas where more fly ash has been managed. SCPA-2 is located in the northern portion of the pond where primarily bottom ash was managed.

Due to differing pore-water chemistries within the SCPA, the SCPA is divided into two separate sources for comparison which include (1) an average of the southern locations (SCPA-1S, SCPA-1D, SCPA-3S, and SCPA-3D), and (2) SCPA-2. Separating the SCPA into two potential sources more accurately reflects the differing depositional conditions (and corresponding chemical characteristics) within the SCPA.

5.0 CORRELATING ALLUVIAL AQUIFER SAMPLES WITH SOURCES

A correlation between the average groundwater concentration and the different source waters was completed to demonstrate which source better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results demonstrate that groundwater in the alluvial aquifer either correlates with the SCPA pore-water or background groundwater but shows a lower degree of correlation with the SCPB pore-water.

Table 5 – Summary of USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Average	SCPB Average	SCPA Average (no SCPA-2)	SCPA-2 Average	
S-AM-1D	99%	34%	20%	98%	Background
S-AM-1S	99%	31%	18%	97%	Background
S-DG-1	100%	34%	25%	98%	Background
S-DG-2	100%	38%	29%	99%	Background
S-DG-3	100%	42%	34%	99%	Background
S-DG-4	100%	41%	31%	99%	Background
S-LMW-1S	94%	58%	50%	98%	SCPA-2
S-LMW-2S	80%	71%	65%	88%	SCPA-2
S-LMW-3S	100%	35%	26%	99%	Background
S-LMW-4S	99%	39%	26%	98%	Background
S-LMW-5S	44%	97%	96%	56%	SCPB
S-LMW-6S	56%	92%	94%	67%	SCPA
S-LMW-7S	67%	87%	89%	76%	SCPA
S-LMW-8S	61%	89%	91%	72%	SCPA
S-LMW-9S	95%	59%	52%	98%	SCPA-2
S-PZ-1S	89%	72%	66%	95%	SCPA-2
S-PZ-9D	78%	81%	80%	86%	SCPA-2
S-TMW-1	99%	46%	39%	99%	SCPA-2
S-TMW-2	100%	37%	28%	99%	Background
S-TMW-3	100%	39%	30%	99%	Background
S-TP-2D	73%	83%	85%	82%	SCPA
S-TP-3D	99%	50%	42%	100%	SCPA-2
S-TP-4D	97%	55%	48%	99%	SCPA-2
S-TP-5D	75%	85%	83%	84%	SCPB
S-TP-6D	99%	45%	36%	100%	SCPA-2
S-TP-6S	100%	39%	30%	99%	Background
S-TP-8D	100%	38%	29%	99%	Background
S-UG-1A	99%	41%	29%	99%	SCPA-2
S-UG-2	99%	30%	21%	97%	Background
S-UG-3	98%	49%	36%	100%	SCPA-2
S-UMW-1D	97%	57%	48%	99%	SCPA-2
S-UMW-2D	33%	93%	99%	46%	SCPA
S-UMW-3D	19%	91%	99%	32%	SCPA
S-UMW-4D	55%	93%	95%	66%	SCPA
S-UMW-5D	99%	31%	18%	97%	Background
S-UMW-6D	100%	38%	28%	99%	Background
S-TMW-4	100%	41%	32%	99%	Background
S-TMW-5	100%	41%	32%	99%	Background
S-TMW-6	100%	37%	27%	98%	Background

Notes:

1) Values display percent correlation between each sampling point and the SCPA Average (SCPA-1 and SCPA-3), SCPA-2 Average, SCPB Average, or Background Average fingerprints.
2) The higher values are shaded darker and indicate better correlation.
3) More information on the calculation of these numbers is provided in Table 1.

Tables

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	mg/L	280	268	399	427	382	357	444
BORON, TOTAL	mg/L	4.41	0.258	0.14	0.0579	0.065	0.0589	0.107
CALCIUM, TOTAL	mg/L	75.8	75.8	125	136	116	114	138
CHLORIDE, TOTAL	mg/L	27.8	34.1	10	7.2	11.4	13.4	2.5
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	2.90	0.829	9.49	0.057	8.44	0.06	0.263
MAGNESIUM, TOTAL	mg/L	16.3	15.9	27.1	26.6	27	20.7	32.9
MANGANESE, TOTAL	mg/L	0.37	1.97	1.01	0.489	0.594	0.211	0.152
POTASSIUM, TOTAL	mg/L	6.21	9.03	2.43	0.633	3.46	0.717	4.1
SODIUM, TOTAL	mg/L	23.5	17.7	6.7	5.97	6.29	5.96	4.63
SULFATE, TOTAL	mg/L	7.2	1.3	19.7	46.9	28	12.3	19.4
Sum		444.5	424.9	600.6	651.0	583.3	524.5	646.1

Analyte	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	63%	63%	66%	66%	65%	68%	69%
BORON, TOTAL	0.99%	0.061%	0.023%	0.0089%	0.011%	0.011%	0.017%
CALCIUM, TOTAL	17%	18%	21%	21%	20%	22%	21%
CHLORIDE, TOTAL	6.3%	8%	1.7%	1.1%	2%	2.6%	0.39%
FLUORIDE, TOTAL	0.013%	0.014%	0.01%	0.0092%	0.01%	0.011%	0.0093%
IRON, TOTAL	0.65%	0.2%	1.6%	0.0088%	1.4%	0.011%	0.041%
MAGNESIUM, TOTAL	3.7%	3.7%	4.5%	4.1%	4.6%	3.9%	5.1%
MANGANESE, TOTAL	0.083%	0.46%	0.17%	0.075%	0.1%	0.04%	0.024%
POTASSIUM, TOTAL	1.4%	2.1%	0.4%	0.097%	0.59%	0.14%	0.63%
SODIUM, TOTAL	5.3%	4.2%	1.1%	0.92%	1.1%	1.1%	0.72%
SULFATE, TOTAL	1.6%	0.31%	3.3%	7.2%	4.8%	2.3%	3%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: JSI
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	mg/L	406	463	521	283	341	576	627
BORON, TOTAL	mg/L	0.082	0.0819	0.105	1.1	9.27	0.214	7.59
CALCIUM, TOTAL	mg/L	133	160	154	116	180	207	139
CHLORIDE, TOTAL	mg/L	2.3	8.2	12.4	68.8	159	62.6	5.3
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.278	0.0946	0.0147	0.0608	0.044	0.0772	9.42
MAGNESIUM, TOTAL	mg/L	27.8	33.3	47.8	28.1	38.8	43.3	35
MANGANESE, TOTAL	mg/L	0.484	0.94	1.07	0.080	0.53	0.124	1.12
POTASSIUM, TOTAL	mg/L	6.67	5.07	6.69	7.68	5.85	5.19	5.2
SODIUM, TOTAL	mg/L	4.3	4.9	8.9	30.2	73.9	20.9	36.6
SULFATE, TOTAL	mg/L	35.2	65.1	63.3	103	221	37	51.8
Sum		616.2	740.7	815.3	638.1	1029.5	952.5	918.1

Analyte	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	66%	63%	64%	44%	33%	60%	68%
BORON, TOTAL	0.013%	0.011%	0.013%	0.17%	0.9%	0.022%	0.83%
CALCIUM, TOTAL	22%	22%	19%	18%	17%	22%	15%
CHLORIDE, TOTAL	0.37%	1.1%	1.5%	11%	15%	6.6%	0.58%
FLUORIDE, TOTAL	0.0097%	0.0081%	0.0074%	0.0094%	0.0058%	0.0063%	0.0065%
IRON, TOTAL	0.045%	0.013%	0.0018%	0.0095%	0.0043%	0.0081%	1%
MAGNESIUM, TOTAL	4.5%	4.5%	5.9%	4.4%	3.8%	4.5%	3.8%
MANGANESE, TOTAL	0.079%	0.13%	0.13%	0.013%	0.051%	0.013%	0.12%
POTASSIUM, TOTAL	1.1%	0.68%	0.82%	1.2%	0.57%	0.54%	0.57%
SODIUM, TOTAL	0.7%	0.66%	1.1%	4.7%	7.2%	2.2%	4%
SULFATE, TOTAL	5.7%	8.8%	7.8%	16%	21%	3.9%	5.6%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: JSI
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	mg/L	350	410	365	358	537	186	290
BORON, TOTAL	mg/L	12.1	14.7	3.69	4.97	1.08	10	3.12
CALCIUM, TOTAL	mg/L	214	235	204	233	203	82.6	139
CHLORIDE, TOTAL	mg/L	23.8	9.80	24.4	77.8	103	23.5	8.5
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.132	0.0986	0.00455	0.0298	0.0112	5.35	8.61
MAGNESIUM, TOTAL	mg/L	44.3	56.9	56.5	57.8	67.2	16.7	34
MANGANESE, TOTAL	mg/L	1.17	0.414	0.581	1.21	0.154	0.602	0.977
POTASSIUM, TOTAL	mg/L	6.02	4.18	4.07	4.8	4.91	2.07	4.25
SODIUM, TOTAL	mg/L	132	64.3	17.2	54.1	38.6	22.9	17.3
SULFATE, TOTAL	mg/L	644	586	416	459	205	106	244
Sum		1427.6	1381.5	1091.5	1250.8	1160.0	455.8	749.8

Analyte	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	25%	30%	33%	29%	46%	41%	39%
BORON, TOTAL	0.85%	1.1%	0.34%	0.4%	0.093%	2.2%	0.42%
CALCIUM, TOTAL	15%	17%	19%	19%	17%	18%	19%
CHLORIDE, TOTAL	1.7%	0.71%	2.2%	6.2%	8.9%	5.2%	1.1%
FLUORIDE, TOTAL	0.0042%	0.0043%	0.0055%	0.0048%	0.0052%	0.013%	0.008%
IRON, TOTAL	0.0092%	0.0071%	0.00042%	0.0024%	0.00097%	1.2%	1.1%
MAGNESIUM, TOTAL	3.1%	4.1%	5.2%	4.6%	5.8%	3.7%	4.5%
MANGANESE, TOTAL	0.082%	0.03%	0.053%	0.097%	0.013%	0.13%	0.13%
POTASSIUM, TOTAL	0.42%	0.3%	0.37%	0.38%	0.42%	0.45%	0.57%
SODIUM, TOTAL	9.2%	4.7%	1.6%	4.3%	3.3%	5%	2.3%
SULFATE, TOTAL	45%	42%	38%	37%	18%	23%	33%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Table 1
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SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	mg/L	279	379	399	470	339	311	280
BORON, TOTAL	mg/L	0.0802	0.0859	0.0961	0.0923	0.0634	0.0584	7.69
CALCIUM, TOTAL	mg/L	107.0	123	134	270	119	113	140
CHLORIDE, TOTAL	mg/L	2.3	5.8	5.1	61.2	10.5	6.2	34.9
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.00455	2.25	1.32	16.7	7.82	5.98	9.62
MAGNESIUM, TOTAL	mg/L	18.5	21.7	24	74	29.6	28	35.5
MANGANESE, TOTAL	mg/L	0.278	0.431	0.62	1.29	0.676	0.383	1.15
POTASSIUM, TOTAL	mg/L	5.73	5.29	6.43	6.01	3.97	3.18	5.23
SODIUM, TOTAL	mg/L	3.51	4.45	4.98	21.8	6.92	7.42	37.9
SULFATE, TOTAL	mg/L	54.8	28.8	40.9	459	80.6	95.1	256
Sum		471.3	570.9	616.5	1380.2	598.2	570.4	808.1

Analyte	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	59%	66%	65%	34%	57%	55%	35%
BORON, TOTAL	0.017%	0.015%	0.016%	0.0067%	0.011%	0.01%	0.95%
CALCIUM, TOTAL	23%	22%	22%	20%	20%	20%	17%
CHLORIDE, TOTAL	0.49%	1%	0.83%	4.4%	1.8%	1.1%	4.3%
FLUORIDE, TOTAL	0.013%	0.011%	0.0097%	0.0043%	0.01%	0.011%	0.0074%
IRON, TOTAL	0.00097%	0.39%	0.21%	1.2%	1.3%	1%	1.2%
MAGNESIUM, TOTAL	3.9%	3.8%	3.9%	5.4%	4.9%	4.9%	4.4%
MANGANESE, TOTAL	0.059%	0.075%	0.1%	0.093%	0.11%	0.067%	0.14%
POTASSIUM, TOTAL	1.2%	0.93%	1%	0.44%	0.66%	0.56%	0.65%
SODIUM, TOTAL	0.74%	0.78%	0.81%	1.6%	1.2%	1.3%	4.7%
SULFATE, TOTAL	12%	5%	6.6%	33%	13%	17%	32%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	mg/L	345	390	335	428	309	333	220
BORON, TOTAL	mg/L	0.0525	0.0991	0.076	0.165	1.7	0.638	0.72
CALCIUM, TOTAL	mg/L	112	127	112	157	119	107	78.5
CHLORIDE, TOTAL	mg/L	14.5	7.60	23.8	74.80	12.9	34.5	28.8
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	7.13	0.174	6.21	0.011	0.00455	0.0148	0.711
MAGNESIUM, TOTAL	mg/L	28.6	27.7	24.8	36.4	24.3	20.8	22.4
MANGANESE, TOTAL	mg/L	0.49	0.262	0.452	0.355	0.160	1.08	0.135
POTASSIUM, TOTAL	mg/L	3.71	2.61	3.45	10.7	3.71	5.03	5.17
SODIUM, TOTAL	mg/L	5.63	5.66	6.43	43.30	14.9	45.8	16
SULFATE, TOTAL	mg/L	60.8	39.6	33.3	52.7	0.79	65	72.1
Sum		578.0	600.8	545.6	803.5	486.5	612.9	444.6

Analyte	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	60%	65%	61%	53%	64%	54%	49%
BORON, TOTAL	0.0091%	0.016%	0.014%	0.021%	0.35%	0.1%	0.16%
CALCIUM, TOTAL	19%	21%	21%	20%	24%	17%	18%
CHLORIDE, TOTAL	2.5%	1.3%	4.4%	9.3%	2.7%	5.6%	6.5%
FLUORIDE, TOTAL	0.01%	0.01%	0.011%	0.0075%	0.012%	0.0098%	0.013%
IRON, TOTAL	1.2%	0.029%	1.1%	0.0014%	0.00094%	0.0024%	0.16%
MAGNESIUM, TOTAL	4.9%	4.6%	4.5%	4.5%	5%	3.4%	5%
MANGANESE, TOTAL	0.085%	0.044%	0.083%	0.044%	0.033%	0.18%	0.03%
POTASSIUM, TOTAL	0.64%	0.43%	0.63%	1.3%	0.76%	0.82%	1.2%
SODIUM, TOTAL	0.97%	0.94%	1.2%	5.4%	3.1%	7.5%	3.6%
SULFATE, TOTAL	11%	6.6%	6.1%	6.6%	0.16%	11%	16%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: JSI
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-TMW-4	S-TMW-5
ALKALINITY	mg/L	144	179	200	287	362	363	400
BORON, TOTAL	mg/L	19.6	31.9	16.6	6.22	0.411	0.0937	0.0933
CALCIUM, TOTAL	mg/L	162	279	136	78.7	109	117	132
CHLORIDE, TOTAL	mg/L	24.9	14.9	27.3	23.8	4	2	1.4
FLUORIDE, TOTAL	mg/L	0.73	0.23	0.21	0.15	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.255	0.875	5.79	3.44	7.23	0.00455	0.0689
MAGNESIUM, TOTAL	mg/L	3.74	9.92	19.2	17.6	25.2	30.4	26.2
MANGANESE, TOTAL	mg/L	0.155	0.508	1.4	0.487	0.775	0.695	0.661
POTASSIUM, TOTAL	mg/L	24.9	21.2	12.9	9.95	4.53	5.88	5.55
SODIUM, TOTAL	mg/L	50	106	50.7	20.7	9.06	4.97	4.41
SULFATE, TOTAL	mg/L	365	758	293	1.9	30.4	44.3	50
Sum		795.3	1401.5	763.1	449.9	552.7	568.4	620.4

Analyte	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-TMW-4	S-TMW-5
ALKALINITY	18%	13%	26%	64%	66%	64%	64%
BORON, TOTAL	2.5%	2.3%	2.2%	1.4%	0.074%	0.016%	0.015%
CALCIUM, TOTAL	20%	20%	18%	17%	20%	21%	21%
CHLORIDE, TOTAL	3.1%	1.1%	3.6%	5.3%	0.72%	0.35%	0.23%
FLUORIDE, TOTAL	0.092%	0.016%	0.028%	0.033%	0.011%	0.011%	0.0097%
IRON, TOTAL	0.032%	0.062%	0.76%	0.76%	1.3%	0.0008%	0.011%
MAGNESIUM, TOTAL	0.47%	0.71%	2.5%	3.9%	4.6%	5.3%	4.2%
MANGANESE, TOTAL	0.019%	0.036%	0.18%	0.11%	0.14%	0.12%	0.11%
POTASSIUM, TOTAL	3.1%	1.5%	1.7%	2.2%	0.82%	1%	0.89%
SODIUM, TOTAL	6.3%	7.6%	6.6%	4.6%	1.6%	0.87%	0.71%
SULFATE, TOTAL	46%	54%	38%	0.42%	5.5%	7.8%	8.1%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

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Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-6	S-LB-2	S-LB4	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2
ALKALINITY	mg/L	438	133	115	468	228	549	219
BORON, TOTAL	mg/L	0.12	4.51	6.5	17.9	7.68	111	0.348
CALCIUM, TOTAL	mg/L	134	112	94.1	40.1	101	825	73.4
CHLORIDE, TOTAL	mg/L	2	25.7	38.2	30.5	25.0	26.0	20.5
FLUORIDE, TOTAL	mg/L	0.06	1.30	1.10	1.20	1.20	0.79	0.22
IRON, TOTAL	mg/L	0.00455	0.0062	0.057	0.0219	0.779	0.0062	1.35
MAGNESIUM, TOTAL	mg/L	28	0.122	0.108	0.0284	23.9	4.88	20.0
MANGANESE, TOTAL	mg/L	0.428	0.0009	0.0009	0.0009	0.0979	0.0009	0.113
POTASSIUM, TOTAL	mg/L	36.2	24.9	25.2	91.0	11.8	55.2	4.35
SODIUM, TOTAL	mg/L	5.24	108	76.1	267	27.0	81.4	13.9
SULFATE, TOTAL	mg/L	36	451	318	393	200	2080	48.5
Sum		680.1	860.5	674.4	1308.8	626.5	3733.3	401.7

Analyte	S-TMW-6	S-LB-2	S-LB4	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2
ALKALINITY	64%	15%	17%	36%	36%	15%	55%
BORON, TOTAL	0.018%	0.52%	0.96%	1.4%	1.2%	3%	0.087%
CALCIUM, TOTAL	20%	13%	14%	3.1%	16%	22%	18%
CHLORIDE, TOTAL	0.29%	3%	5.7%	2.3%	4%	0.7%	5.1%
FLUORIDE, TOTAL	0.0088%	0.15%	0.16%	0.092%	0.19%	0.021%	0.055%
IRON, TOTAL	0.00067%	0.00072%	0.0085%	0.0017%	0.12%	0.00017%	0.34%
MAGNESIUM, TOTAL	4.1%	0.014%	0.016%	0.0022%	3.8%	0.13%	5%
MANGANESE, TOTAL	0.063%	0.0001%	0.00013%	0.000069%	0.016%	0.000024%	0.028%
POTASSIUM, TOTAL	5.3%	2.9%	3.7%	7%	1.9%	1.5%	1.1%
SODIUM, TOTAL	0.77%	13%	11%	20%	4.3%	2.2%	3.5%
SULFATE, TOTAL	5.3%	52%	47%	30%	32%	56%	12%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023; Values for pore-water samples from SCPB ASD Investigation collected in February-March 2018.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: JSI
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	mg/L	185	170	326
BORON, TOTAL	mg/L	79.5	67.8	10.7
CALCIUM, TOTAL	mg/L	548	501	37.2
CHLORIDE, TOTAL	mg/L	27.1	23.1	51.7
FLUORIDE, TOTAL	mg/L	2.9	0.60	1.8
IRON, TOTAL	mg/L	0.138	0.0343	0.0697
MAGNESIUM, TOTAL	mg/L	60.2	9.60	0.0387
MANGANESE, TOTAL	mg/L	0.202	0.0179	0.0009
POTASSIUM, TOTAL	mg/L	60.3	40.1	74.9
SODIUM, TOTAL	mg/L	116	58.5	314
SULFATE, TOTAL	mg/L	1820	1290	630
Sum		2899.3	2160.8	1446.4

Analyte	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	6.4%	7.9%	23%
BORON, TOTAL	2.7%	3.1%	0.74%
CALCIUM, TOTAL	19%	23%	2.6%
CHLORIDE, TOTAL	0.93%	1.1%	3.6%
FLUORIDE, TOTAL	0.1%	0.028%	0.12%
IRON, TOTAL	0.0048%	0.0016%	0.0048%
MAGNESIUM, TOTAL	2.1%	0.44%	0.0027%
MANGANESE, TOTAL	0.007%	0.00083%	0.000062%
POTASSIUM, TOTAL	2.1%	1.9%	5.2%
SODIUM, TOTAL	4%	2.7%	22%
SULFATE, TOTAL	63%	60%	44%
Sum	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2023; Values for pore-water samples from SCPB ASD Investigation collected in February-March 2018.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Appendix C

Alternative Source Demonstration – May 2024 Sampling Event

Technical Memorandum

January 3, 2025

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:** 23009-24	
From:	Rocksmith Geoengineering - Mark Haddock, P.E., R.G., Jeff Ingram, R.G., Grant Morey	**Email:** jeff.ingram@rocksmithgeo.com	
RE:	**SCPB – ALTERNATIVE SOURCE DEMONSTRATION – MAY 2024 SAMPLING EVENT**		

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), Rocksmith Geoengineering, LLC (Rocksmith) has prepared this Technical Memorandum to show that Statistically Significant Increases (SSIs) identified at Ameren Missouri's (Ameren) Sioux Energy Center (SEC) fly ash surface impoundment (SCPB) are the result from an alternative source and are not related to impacts from SCPB. This SCPB Alternative Source Demonstration (ASD) satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

2.0 BACKGROUND

The first round of Detection Monitoring was completed during November 2017 at the SEC's SCPB CCR Unit in St. Charles County, Missouri. This sampling was completed in accordance with the CCR Rule, and SSIs were identified and verified. In February/March 2018, additional drilling and detailed analysis of results were completed, and it was determined that the SSIs in the CCR Rule groundwater monitoring wells at the SCPB were not caused by impacts from the SCPB. Based on the previous ASDs prepared for the SCPB, the SSIs observed in the SCPB wells were caused by the adjacent SCPA bottom ash surface impoundment. This conclusion was supported by lines of evidence (LOEs) as follows.

- Geochemical Signatures
- USEPA FALCON Analysis
- Groundwater Flow Directions
- Construction of the SCPB

Previous ASD reports may be found in the SCPB Annual Groundwater Monitoring and Corrective Action Reports available on Ameren's Publicly available website (https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports).

3.0 MAY 2024 SAMPLING EVENT

A summary of the May 2024 sampling results is provided in **Table 1**. As discussed in **Section 2.0**, there are several LOEs presented in the previous ASDs that demonstrate impacts around the SCPB are caused by the SCPA and not the SCPB. Both CCR units are now capped and closed with a geomembrane cover system and the same LOEs are still present at the site. The following summarizes the LOEs that indicate exceedances in the May 2024 sampling event around the SCPB are from the SCPA and not the SCPB using current monitoring data through the May 2024 sampling event.

- **Geochemical Signatures** – As reflected on the piper diagram provided in **Figure 1**, SCPA pore-water has a distinctly different geochemical signature than the pore-water from the SCPB. CCR groundwater samples in monitoring wells with SSIs plot on the piper diagrams primarily in a location between the SCPA pore-water zone and the background groundwater zone, indicating that well water chemistry is a mixture of unaffected groundwater and groundwater impacted by the SCPA.

- **USEPA FALCON ANALYSIS** – The USEPA FALCON method compared constituent fingerprints from the downgradient monitoring wells with those of background groundwater, SCPB pore-water, and SCPA pore-water. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A**. An updated calculation using data from the May 2024 sampling event was completed and a summary of the results is provided in Table 5 of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both the SCPA pore-water and background groundwater, while there is low correlation between downgradient monitoring well data and SCPB pore-water. These same correlations were found at depth within the alluvial aquifer.

- **Groundwater Flow Direction** – Potentiometric surface mapping demonstrates that groundwater flow direction is variable and can temporarily flow in multiple directions. Generally, groundwater flows to the east-southeast depending on the river level in the adjacent Mississippi and Missouri Rivers. Relatively low Missouri River levels from mid-2022 through early 2024 have led to a predominately southward flow direction across the SEC. The potentiometric surface map for the May 2024 sampling event indicates a return to a stronger eastward component of groundwater flow. Typical groundwater flow direction at the site supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells relative to both the SCPA and SCPB.

- **SCPB Construction** - The SCPB was constructed in 1993 with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 419 feet above mean sea level (FT MSL). The low permeability HDPE liner system in the SCPB is a barrier to the migration of CCR impacts and provides containment for CCR. The SCPA began operation in 1967 and has a bottom elevation estimated to be 370 FT MSL, which is much deeper than the SCPB. In addition to the distinct pore-water fingerprint for SCPA relative to SCPB, there are elevated concentrations of CCR indicators in the shallow, intermediate (middle), and deep alluvial groundwater zones. Elevated concentrations are not isolated to the shallow zone, which would be the most likely zone influenced if leakage from the SCPB had occurred. The impacts to the intermediate and deep alluvial zones are most likely from the SCPA, where the base elevation extends into deeper groundwater zones in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence demonstrate that SSIs reported for the May 2024 Sampling Event for the SCPB CCR Unit were not caused by impacts from the SCPB surface impoundment. The SCPA surface impoundment, located immediately adjacent and upgradient to the SCPB, is the source of the SSIs for groundwater in the SCPB monitoring well network.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – May 2024 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *SCPB – Alternative Source Demonstration – May 2024 Sampling Event* 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, PE, RG
Principal Engineer, Senior Partner

Attachments: Table 1 – May 2024 Detection Monitoring Results
Figure 1 – SCPB Piper Diagram for May 2024
Appendix A – FALCON Analysis Calculation Package

Tables

Table 1
May 2024 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
May 2024 Detection Monitoring Event													
DATE	NA	NA	5/28/2024	5/28/2024	5/31/2024	5/28/2024	5/29/2024	5/29/2024	5/31/2024	5/31/2024	5/30/2024	5/30/2024	5/31/2024
pH	SU	6.515-7.42	6.86	6.95	7.33	7.03	6.63	6.76	6.91	6.95	6.97	6.78	6.63
BORON, TOTAL	µg/L	118	58.1 J	54.1 J	1,030	9,220	188	1,990	15,600	8,930	3,690	5,390	1,020
CALCIUM, TOTAL	µg/L	174,465	133,000	116,000	136,000	196,000	202,000	203,000	210,000	200,000	194,000	235,000	211,000
CHLORIDE, TOTAL	mg/L	13.65	10.1	11.1	139	167	97.4	21.5	10.8	23.9	35.4	113	52.7
FLUORIDE, TOTAL	mg/L	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22
SULFATE, TOTAL	mg/L	61.1	37.7	19.7	110	239	49.0	135	788	502	404	475 J	206
TOTAL DISSOLVED SOLIDS	mg/L	608.2	470	529	673	943	799	743	1,300	1,110	871	1,150	987
July 2024 Verification Sampling Event													
DATE	NA	NA			7/29/2024			7/29/2024		7/29/2024			
pH	SU	6.515-7.42											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	174,465						194,000					
CHLORIDE, TOTAL	mg/L	13.65						30.2		54.4 J			
FLUORIDE, TOTAL	mg/L	0.46											
SULFATE, TOTAL	mg/L	61.1						185					
TOTAL DISSOLVED SOLIDS	mg/L	608.2			648								

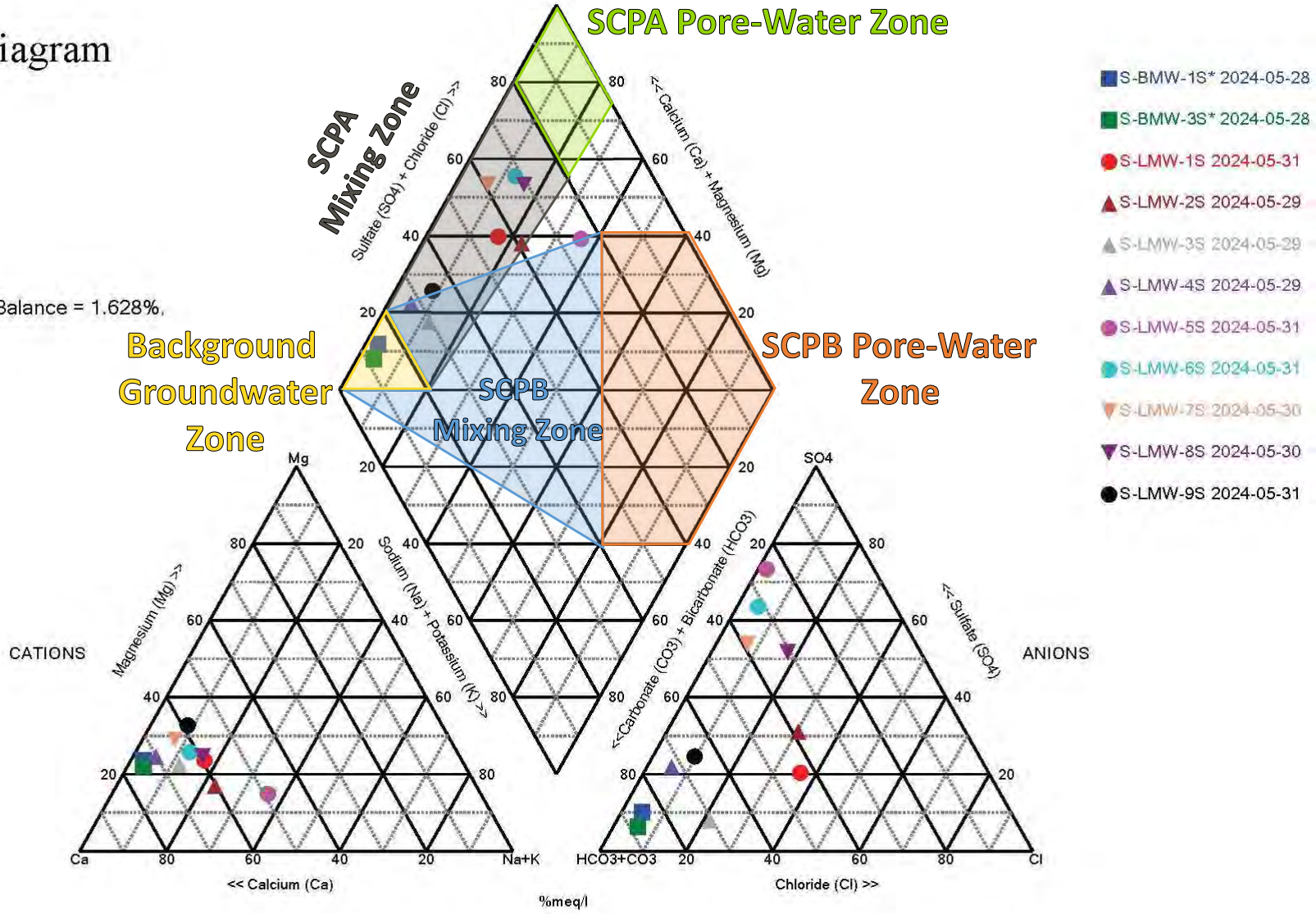
NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data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

Prepared By: JTR
Checked By: JTA
Reviewed By: MNH

Figures

Piper Diagram

Cation-Anion Balance = 1.628%



Notes
1) Piper diagram generated using Sanitas Software.
2) %mEq/l – milliequivalents per liter

CLIENT/PROJECT **AMEREN MISSOURI** **SIOUX ENERGY CENTER**					TITLE **SCPB Piper Diagram for May 2024**	
DRAWN GTM	CHECKED JTR	REVIEWED MNH	DATE 2024-12-19	ROCKSMITH GEOENGINEERING	Rev No. NA	JOB NO. 23009-24	FIGURE **1**

Appendix A
FALCON Analysis Calculation Package

Calculation Package

January 3, 2025

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:** 23009-24	
From:	Rocksmith Geoengineering - Mark Haddock, P.E., R.G., Jeff Ingram R.G., Grant Morey	**Email:** jeff.ingram@rocksmithgeo.com	
RE:	**Appendix A – SCPB Falcon Analysis Calculation Package**		

1.0 OBJECTIVE

The objective of this analysis is to determine if there is a correlation between the ion ratio fingerprints in the SCPA pore-water, SCPB pore-water, or background groundwater with the compliance monitoring wells samples in the alluvial aquifer at the Sioux Energy Center (SEC).

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method compiles ion ratios for multiple constituents in order to develop a distinctive chemical fingerprint for each possible contaminant source and un-impacted background groundwater. These fingerprints are then correlated to well sample data downgradient of the sources and are used to characterize the source of the contaminant plume. For this analysis, background groundwater quality is derived from background well samples located approximately 0.50 to 0.75 miles west of the SCPB. Source data is from pore-water collected from piezometers within the SCPA and SCPB. Fingerprints from these three sources (background groundwater, SCPA pore-water, and SCPB pore-water) are compared to data from alluvial aquifer monitoring well sampling locations at the SEC. Data from the SCPA and SCPB pore-water are from the November 2017 ASD for the SCPB, which is available in the 2018 Annual Report for the SCPB. Data from the background and compliance monitoring wells are from the November 2023 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis is to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each water type. Constituents selected included major cation and anion constituents that represent groundwater chemistry as well as key indicators of CCR impacts. Values of the three different sources were compared to see which constituents fit the criteria. A summary table of the values used for the three sources is provided in **Table 1**. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Calcium
- Total Fluoride
- Total Boron
- Total Chloride
- Total Iron

- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized and a graphical presentation of the fingerprints was produced. These steps are provided in **Table 1** for the three different sources (background groundwater, SCPA pore-water, and SCPB pore-water), as well as each monitoring well evaluated. Correlations were then completed between the different sources to determine each source's reproducibility. Tables displaying these correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

Table 2 - Background Groundwater Correlations				
Well ID	*S-BMW-1D*	*S-BMW-1S*	*S-BMW-3D*	*S-BMW-3S*
S-BMW-1D				
S-BMW-1S	99.9%			
S-BMW-3D	100.0%	99.9%		
S-BMW-3S	99.9%	100.0%	99.8%	
Average Fingerprint Reproducibility			99.9%	

Table 3 – SCPB Pore-water Correlations

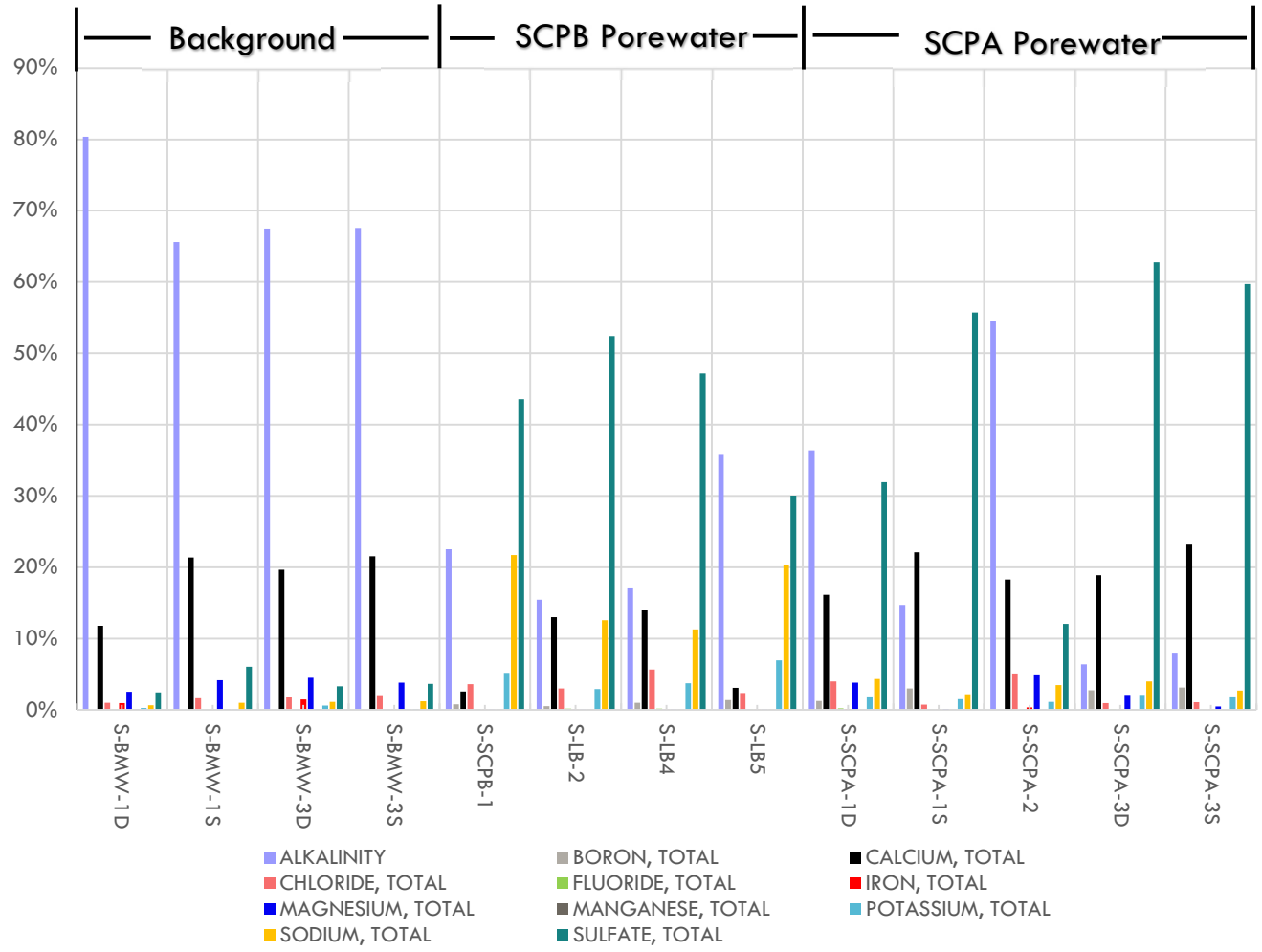
Table 3 – SCPB Pore-water Correlations				
Well ID	*S-LB-2*	*S-LB-4*	*S-LB-5*	*S-SCPB-1*
S-LB-2				
S-LB-4	99.6%			
S-LB-5	74.8%	76.9%		
S-SCPB-1	93.0%	92.8%	90.5%	
Average Fingerprint Reproducibility			87.9%	

Table 4 – SCPA Pore-water Correlations

Table 4 – SCPA Pore-water Correlations					
Well ID	*S-SCPA-1D*	*S-SCPA-1S*	*S-SCPA-2*	*S-SCPA-3D*	*S-SCPA-3S*
S-SCPA-1D					
S-SCPA-1S	78.8%				
S-SCPA-2	84.8%	35.6%			
S-SCPA-3D	67.8%	98.2%	19.1%		
S-SCPA-3S	70.3%	99.1%	23.4%	99.5%	
Average Fingerprint Reproducibility				67.7%	
Average Fingerprint Reproducibility (without SCPA-2)				85.6%	

Additionally, **Figure 1** below displays a histogram of the different source water normalizations.

Figure 1 – Histogram of Source Water Normalizations at the SEC



After reviewing the correlations for the SCPA pore-water, it is evident that there are different sources present within the SCPA which can be seen in the relatively poor correlation between water sampling points. This is likely caused by the historical placement of different types of ash in the CCR unit. SCPA-1 and SCPA-3 locations have a strong correlation and are both located in areas where more fly ash has been managed. SCPA-2 is located in the northern portion of the pond where primarily bottom ash was managed.

Due to differing pore-water chemistries within the SCPA, the SCPA is divided into two separate sources for comparison which include (1) an average of the southern locations (SCPA-1S, SCPA-1D, SCPA-3S, and SCPA-3D), and (2) SCPA-2. Separating the SCPA into two potential sources more accurately reflects the differing depositional conditions (and corresponding chemical characteristics) within the SCPA.

5.0 CORRELATING ALLUVIAL AQUIFER SAMPLES WITH SOURCES

A correlation between the average groundwater concentration and the different source waters was completed to demonstrate which source better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results

demonstrate that groundwater in the alluvial aquifer either correlates with the SCPA pore-water or background groundwater but shows a lower degree of correlation with the SCPB pore-water.

Table 5 – Summary of USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Average	SCPB Average	SCPA Average (no SCPA-2)	SCPA-2 Average	
S-AM-1D	100%	33%	19%	98%	Background
S-AM-1S	99%	45%	33%	99%	SCPA-2
S-DG-1	100%	41%	31%	99%	Background
S-DG-2	99%	47%	39%	100%	SCPA-2
S-DG-3	99%	44%	35%	100%	SCPA-2
S-DG-4	100%	41%	31%	99%	Background
S-LMW-1S	88%	54%	45%	93%	SCPA-2
S-LMW-2S	81%	71%	64%	90%	SCPA-2
S-LMW-3S	99%	37%	26%	99%	Background
S-LMW-4S	98%	50%	42%	100%	SCPA-2
S-LMW-5S	34%	98%	97%	48%	SCPB
S-LMW-6S	51%	92%	95%	64%	SCPA
S-LMW-7S	68%	86%	87%	79%	SCPA
S-LMW-8S	59%	90%	91%	71%	SCPA
S-LMW-9S	97%	55%	45%	100%	SCPA-2
S-PZ-1S	97%	58%	47%	99%	SCPA-2
S-PZ-9D	84%	77%	72%	91%	SCPA-2
S-TMW-1	99%	44%	36%	100%	SCPA-2
S-TMW-2	100%	38%	28%	99%	Background
S-TMW-3	100%	41%	30%	99%	Background
S-TP-2D	54%	91%	94%	66%	SCPA
S-TP-3D	99%	47%	37%	100%	SCPA-2
S-TP-4D	97%	56%	49%	99%	SCPA-2
S-TP-5D	80%	81%	77%	88%	SCPA-2
S-TP-6D	99%	45%	36%	100%	SCPA-2
S-TP-6S	100%	39%	29%	99%	Background
S-TP-8D	94%	46%	46%	96%	SCPA-2
S-UG-1A	97%	51%	39%	99%	SCPA-2
S-UG-2	100%	42%	32%	99%	Background
S-UG-3	99%	50%	39%	100%	SCPA-2
S-UMW-1D	97%	53%	43%	100%	SCPA-2
S-UMW-2D	41%	92%	98%	55%	SCPA
S-UMW-3D	11%	91%	99%	26%	SCPA
S-UMW-4D	69%	89%	86%	80%	SCPB
S-UMW-5D	99%	33%	20%	98%	Background
S-UMW-6D	100%	40%	29%	99%	Background
S-TMW-4	98%	52%	45%	99%	SCPA-2
S-TMW-5	98%	50%	43%	99%	SCPA-2
S-TMW-6	100%	39%	30%	99%	Background

Notes:
1) Values display percent correlation between each sampling point and the SCPA Average (SCPA-1 and SCPA-3), SCPA-2 Average, SCPB Average, or Background Average fingerprints.
2) The higher values are shaded darker and indicate better correlation.
3) More information on the calculation of these numbers is provided in Table 1.

Tables

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	mg/L	312	230	830	408	385	364	539
BORON, TOTAL	mg/L	2.81	0.177	0.117	0.0581	0.064	0.0541	0.0942
CALCIUM, TOTAL	mg/L	82.1	72.8	122	133	112	116	147
CHLORIDE, TOTAL	mg/L	27.9	37.1	10.1	10.1	10.4	11.1	11.2
FLUORIDE, TOTAL	mg/L	0.19	0.06	0.06	0.06	0.06	0.06	0.16
IRON, TOTAL	mg/L	3.00	0.609	9.6	0.0275	8.24	0.03	4.64
MAGNESIUM, TOTAL	mg/L	17.4	15.0	26.1	25.8	25.6	20.5	32.4
MANGANESE, TOTAL	mg/L	0.38	2.19	0.987	0.606	0.572	0.14	0.365
POTASSIUM, TOTAL	mg/L	6.59	7.77	2.5	0.404	3.41	0.618	6.21
SODIUM, TOTAL	mg/L	21.9	19.6	6.56	6.07	6.26	6.41	7.33
SULFATE, TOTAL	mg/L	4.7	38.6	25.0	37.7	18.9	19.7	64.7
Sum		479.0	423.9	1033.0	621.8	570.5	538.6	813.1

Analyte	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	65%	54%	80%	66%	67%	68%	66%
BORON, TOTAL	0.59%	0.042%	0.011%	0.0093%	0.011%	0.01%	0.012%
CALCIUM, TOTAL	17%	17%	12%	21%	20%	22%	18%
CHLORIDE, TOTAL	5.8%	8.8%	0.98%	1.6%	1.8%	2.1%	1.4%
FLUORIDE, TOTAL	0.04%	0.014%	0.0058%	0.0096%	0.011%	0.011%	0.02%
IRON, TOTAL	0.63%	0.14%	0.93%	0.0044%	1.4%	0.0062%	0.57%
MAGNESIUM, TOTAL	3.6%	3.5%	2.5%	4.1%	4.5%	3.8%	4%
MANGANESE, TOTAL	0.078%	0.52%	0.096%	0.097%	0.1%	0.026%	0.045%
POTASSIUM, TOTAL	1.4%	1.8%	0.24%	0.065%	0.6%	0.11%	0.76%
SODIUM, TOTAL	4.6%	4.6%	0.64%	0.98%	1.1%	1.2%	0.9%
SULFATE, TOTAL	0.98%	9.1%	2.4%	6.1%	3.3%	3.7%	8%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: VAH
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	mg/L	475	464	544	304	389	590	577
BORON, TOTAL	mg/L	0.102	0.102	0.0945	1.03	9.22	0.188	1.99
CALCIUM, TOTAL	mg/L	150	164	152	136	196	202	203
CHLORIDE, TOTAL	mg/L	5.6	26.6	14.9	139	167	97.4	21.5
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.537	2.91	0.0919	0.0151	0.033	0.0209	0.0127
MAGNESIUM, TOTAL	mg/L	35.0	33.1	45.3	32.5	34.2	41.6	42.6
MANGANESE, TOTAL	mg/L	0.584	0.767	0.86	0.117	0.39	0.0162	0.0876
POTASSIUM, TOTAL	mg/L	5.73	5.55	6.72	8.21	7.41	5.64	4.74
SODIUM, TOTAL	mg/L	5.36	5.82	9.6	39.1	81.1	37.2	14.5
SULFATE, TOTAL	mg/L	95.4	75.8	65.2	110	239	49.0	135.0
Sum		773.4	778.7	838.9	770.0	1123.4	1023.1	1000.5

Analyte	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	61%	60%	65%	39%	35%	58%	58%
BORON, TOTAL	0.013%	0.013%	0.011%	0.13%	0.82%	0.018%	0.2%
CALCIUM, TOTAL	19%	21%	18%	18%	17%	20%	20%
CHLORIDE, TOTAL	0.72%	3.4%	1.8%	18%	15%	9.5%	2.1%
FLUORIDE, TOTAL	0.0078%	0.0077%	0.0072%	0.0078%	0.0053%	0.0059%	0.006%
IRON, TOTAL	0.069%	0.37%	0.011%	0.002%	0.0029%	0.002%	0.0013%
MAGNESIUM, TOTAL	4.5%	4.3%	5.4%	4.2%	3%	4.1%	4.3%
MANGANESE, TOTAL	0.076%	0.098%	0.1%	0.015%	0.035%	0.0016%	0.0088%
POTASSIUM, TOTAL	0.74%	0.71%	0.8%	1.1%	0.66%	0.55%	0.47%
SODIUM, TOTAL	0.69%	0.75%	1.1%	5.1%	7.2%	3.6%	1.4%
SULFATE, TOTAL	12%	9.7%	7.8%	14%	21%	4.8%	13%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

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Checked By: VAH
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	mg/L	346	322	380	370	711	254	280
BORON, TOTAL	mg/L	15.6	8.93	3.69	5.39	1.02	10.2	2.7
CALCIUM, TOTAL	mg/L	210	200	194	235	211	81.6	109
CHLORIDE, TOTAL	mg/L	10.8	23.90	35.4	113	52.7	27.0	7.2
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.22	0.06	0.06
IRON, TOTAL	mg/L	0.0816	0.0662	0.0213	0.00455	0.0139	5.04	7.3
MAGNESIUM, TOTAL	mg/L	38.3	50.4	54.1	58.1	71.5	17.1	27.0
MANGANESE, TOTAL	mg/L	1.53	0.315	0.724	1.16	0.0819	0.651	0.789
POTASSIUM, TOTAL	mg/L	4.1	3.74	4.52	5.34	4.75	1.6	3.94
SODIUM, TOTAL	mg/L	176	45.2	23.4	68.2	31.7	27.8	15.9
SULFATE, TOTAL	mg/L	788	502	404	475	206	80.8	188
Sum		1590.5	1156.6	1099.9	1331.3	1290.0	505.9	641.9

Analyte	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	22%	28%	35%	28%	55%	50%	44%
BORON, TOTAL	0.98%	0.77%	0.34%	0.4%	0.079%	2%	0.42%
CALCIUM, TOTAL	13%	17%	18%	18%	16%	16%	17%
CHLORIDE, TOTAL	0.68%	2.1%	3.2%	8.5%	4.1%	5.3%	1.1%
FLUORIDE, TOTAL	0.0038%	0.0052%	0.0055%	0.0045%	0.017%	0.012%	0.0093%
IRON, TOTAL	0.0051%	0.0057%	0.0019%	0.00034%	0.0011%	1%	1.1%
MAGNESIUM, TOTAL	2.4%	4.4%	4.9%	4.4%	5.5%	3.4%	4.2%
MANGANESE, TOTAL	0.096%	0.027%	0.066%	0.087%	0.0063%	0.13%	0.12%
POTASSIUM, TOTAL	0.26%	0.32%	0.41%	0.4%	0.37%	0.32%	0.61%
SODIUM, TOTAL	11%	3.9%	2.1%	5.1%	2.5%	5.5%	2.5%
SULFATE, TOTAL	50%	43%	37%	36%	16%	16%	29%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

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Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	mg/L	354	438	390	484	382	332	340
BORON, TOTAL	mg/L	0.0855	0.084	0.0568	0.0843	0.0569	0.0563	7.53
CALCIUM, TOTAL	mg/L	124.0	135	113	259	117	116	151
CHLORIDE, TOTAL	mg/L	12.8	4.0	14.2	62.8	8.6	8.3	42.8
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.02	1.73	0.0327	16.0	7.75	6.5	10.5
MAGNESIUM, TOTAL	mg/L	23.7	23.9	20.6	69.2	28.7	27.9	37.3
MANGANESE, TOTAL	mg/L	0.665	0.538	0.142	1.19	0.655	0.44	1.17
POTASSIUM, TOTAL	mg/L	4.67	5.23	0.677	5.72	3.89	3.27	5.41
SODIUM, TOTAL	mg/L	4.41	3.88	6.61	21.0	6.75	6.88	35.0
SULFATE, TOTAL	mg/L	57.6	34.0	42.4	712	73.5	106	263
Sum		582.0	646.4	587.8	1631.1	629.0	607.4	893.8

Analyte	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	61%	68%	66%	30%	61%	55%	38%
BORON, TOTAL	0.015%	0.013%	0.0097%	0.0052%	0.009%	0.0093%	0.84%
CALCIUM, TOTAL	21%	21%	19%	16%	19%	19%	17%
CHLORIDE, TOTAL	2.2%	0.62%	2.4%	3.9%	1.4%	1.4%	4.8%
FLUORIDE, TOTAL	0.01%	0.0093%	0.01%	0.0037%	0.0095%	0.0099%	0.0067%
IRON, TOTAL	0.0034%	0.27%	0.0056%	0.98%	1.2%	1.1%	1.2%
MAGNESIUM, TOTAL	4.1%	3.7%	3.5%	4.2%	4.6%	4.6%	4.2%
MANGANESE, TOTAL	0.11%	0.083%	0.024%	0.073%	0.1%	0.072%	0.13%
POTASSIUM, TOTAL	0.8%	0.81%	0.12%	0.35%	0.62%	0.54%	0.61%
SODIUM, TOTAL	0.76%	0.6%	1.1%	1.3%	1.1%	1.1%	3.9%
SULFATE, TOTAL	9.9%	5.3%	7.2%	44%	12%	17%	29%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: VAH
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	mg/L	378	447	180	378	272	391	265
BORON, TOTAL	mg/L	0.0604	0.113	0.0694	0.408	0.143	0.345	0.586
CALCIUM, TOTAL	mg/L	117	144	111	124	87.1	129	91.9
CHLORIDE, TOTAL	mg/L	12.5	7.80	13.5	82.70	6.7	28.0	48.7
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.13
IRON, TOTAL	mg/L	7.52	0.0334	6.28	0.00455	0.00455	0.0123	0.903
MAGNESIUM, TOTAL	mg/L	29.2	30.0	24.5	29.2	18.1	24.6	27.0
MANGANESE, TOTAL	mg/L	0.489	0.232	0.446	0.356	0.025	0.276	0.171
POTASSIUM, TOTAL	mg/L	3.71	2.3	3.48	7.7	4.15	4.95	5.63
SODIUM, TOTAL	mg/L	5.36	5.82	5.06	49.90	8.68	35.5	20.6
SULFATE, TOTAL	mg/L	64.7	41.3	48.5	92.3	35.8	81.8	73.1
Sum		618.6	678.7	392.9	764.6	432.8	695.5	533.7

Analyte	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	61%	66%	46%	49%	63%	56%	50%
BORON, TOTAL	0.0098%	0.017%	0.018%	0.053%	0.033%	0.05%	0.11%
CALCIUM, TOTAL	19%	21%	28%	16%	20%	19%	17%
CHLORIDE, TOTAL	2%	1.1%	3.4%	11%	1.5%	4%	9.1%
FLUORIDE, TOTAL	0.0097%	0.0088%	0.015%	0.0078%	0.014%	0.0086%	0.024%
IRON, TOTAL	1.2%	0.0049%	1.6%	0.0006%	0.0011%	0.0018%	0.17%
MAGNESIUM, TOTAL	4.7%	4.4%	6.2%	3.8%	4.2%	3.5%	5.1%
MANGANESE, TOTAL	0.079%	0.034%	0.11%	0.047%	0.0059%	0.04%	0.032%
POTASSIUM, TOTAL	0.6%	0.34%	0.89%	1%	0.96%	0.71%	1.1%
SODIUM, TOTAL	0.87%	0.86%	1.3%	6.5%	2%	5.1%	3.9%
SULFATE, TOTAL	10%	6.1%	12%	12%	8.3%	12%	14%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
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Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-TMW-4	S-TMW-5
ALKALINITY	mg/L	179	141	244	301	379	276	302
BORON, TOTAL	mg/L	11.2	32.8	13.7	6.04	0.204	0.0749	0.0813
CALCIUM, TOTAL	mg/L	171	234	114	84.0	105	96.8	109
CHLORIDE, TOTAL	mg/L	23.8	17.5	34.5	44.3	0.265	2.1	1.6
FLUORIDE, TOTAL	mg/L	1.1	0.06	0.42	0.34	0.06	0.16	0.06
IRON, TOTAL	mg/L	0.277	0.694	5.14	3.79	7.25	0.00455	0.00455
MAGNESIUM, TOTAL	mg/L	3.61	9.68	16.4	19	24.3	22.0	20.5
MANGANESE, TOTAL	mg/L	0.15	0.41	1.15	0.497	0.661	0.425	0.493
POTASSIUM, TOTAL	mg/L	25.5	19.8	12.0	10.3	4.01	4.93	5.13
SODIUM, TOTAL	mg/L	44.0	90.6	43.7	22.4	7.31	3.83	3.98
SULFATE, TOTAL	mg/L	356	784	249	10.8	37.7	73.9	72.1
Sum		815.6	1330.5	734.0	502.5	565.8	480.2	514.9

Analyte	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-TMW-4	S-TMW-5
ALKALINITY	22%	11%	33%	60%	67%	57%	59%
BORON, TOTAL	1.4%	2.5%	1.9%	1.2%	0.036%	0.016%	0.016%
CALCIUM, TOTAL	21%	18%	16%	17%	19%	20%	21%
CHLORIDE, TOTAL	2.9%	1.3%	4.7%	8.8%	0.047%	0.44%	0.31%
FLUORIDE, TOTAL	0.13%	0.0045%	0.057%	0.068%	0.011%	0.033%	0.012%
IRON, TOTAL	0.034%	0.052%	0.7%	0.75%	1.3%	0.00095%	0.00088%
MAGNESIUM, TOTAL	0.44%	0.73%	2.2%	3.8%	4.3%	4.6%	4%
MANGANESE, TOTAL	0.018%	0.031%	0.16%	0.099%	0.12%	0.089%	0.096%
POTASSIUM, TOTAL	3.1%	1.5%	1.6%	2%	0.71%	1%	1%
SODIUM, TOTAL	5.4%	6.8%	6%	4.5%	1.3%	0.8%	0.77%
SULFATE, TOTAL	44%	59%	34%	2.1%	6.7%	15%	14%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from May 2024 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
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Prepared By: GTM
Checked By: VAH
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Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-6	S-LB-2	S-LB4	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2
ALKALINITY	mg/L	433	133	115	468	228	549	219
BORON, TOTAL	mg/L	0.0935	4.51	6.5	17.9	7.68	111	0.348
CALCIUM, TOTAL	mg/L	143	112	94.1	40.1	101	825	73.4
CHLORIDE, TOTAL	mg/L	16.5	25.7	38.2	30.5	25.0	26.0	20.5
FLUORIDE, TOTAL	mg/L	0.06	1.30	1.10	1.20	1.20	0.79	0.22
IRON, TOTAL	mg/L	0.00455	0.0062	0.057	0.0219	0.779	0.0062	1.35
MAGNESIUM, TOTAL	mg/L	27.7	0.122	0.108	0.0284	23.9	4.88	20.0
MANGANESE, TOTAL	mg/L	0.222	0.0009	0.0009	0.0009	0.0979	0.0009	0.113
POTASSIUM, TOTAL	mg/L	7.62	24.9	25.2	91.0	11.8	55.2	4.35
SODIUM, TOTAL	mg/L	5.12	108	76.1	267	27.0	81.4	13.9
SULFATE, TOTAL	mg/L	45.8	451	318	393	200	2080	48.5
Sum		679.1	860.5	674.4	1308.8	626.5	3733.3	401.7

Analyte	S-TMW-6	S-LB-2	S-LB4	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2
ALKALINITY	64%	15%	17%	36%	36%	15%	55%
BORON, TOTAL	0.014%	0.52%	0.96%	1.4%	1.2%	3%	0.087%
CALCIUM, TOTAL	21%	13%	14%	3.1%	16%	22%	18%
CHLORIDE, TOTAL	2.4%	3%	5.7%	2.3%	4%	0.7%	5.1%
FLUORIDE, TOTAL	0.0088%	0.15%	0.16%	0.092%	0.19%	0.021%	0.055%
IRON, TOTAL	0.00067%	0.00072%	0.0085%	0.0017%	0.12%	0.00017%	0.34%
MAGNESIUM, TOTAL	4.1%	0.014%	0.016%	0.0022%	3.8%	0.13%	5%
MANGANESE, TOTAL	0.033%	0.0001%	0.00013%	0.000069%	0.016%	0.000024%	0.028%
POTASSIUM, TOTAL	1.1%	2.9%	3.7%	7%	1.9%	1.5%	1.1%
SODIUM, TOTAL	0.75%	13%	11%	20%	4.3%	2.2%	3.5%
SULFATE, TOTAL	6.7%	52%	47%	30%	32%	56%	12%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from May 2024; Values for pore-water samples from SCPB ASD Investigation collected in February-March 2018.

2) Unit abbreviations - mg/L - milligrams per liter.

3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: VAH
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
SCPB Anternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	mg/L	185	170	326
BORON, TOTAL	mg/L	79.5	67.8	10.7
CALCIUM, TOTAL	mg/L	548	501	37.2
CHLORIDE, TOTAL	mg/L	27.1	23.1	51.7
FLUORIDE, TOTAL	mg/L	2.9	0.60	1.8
IRON, TOTAL	mg/L	0.138	0.0343	0.0697
MAGNESIUM, TOTAL	mg/L	60.2	9.60	0.0387
MANGANESE, TOTAL	mg/L	0.202	0.0179	0.0009
POTASSIUM, TOTAL	mg/L	60.3	40.1	74.9
SODIUM, TOTAL	mg/L	116	58.5	314
SULFATE, TOTAL	mg/L	1820	1290	630
Sum		2899.3	2160.8	1446.4

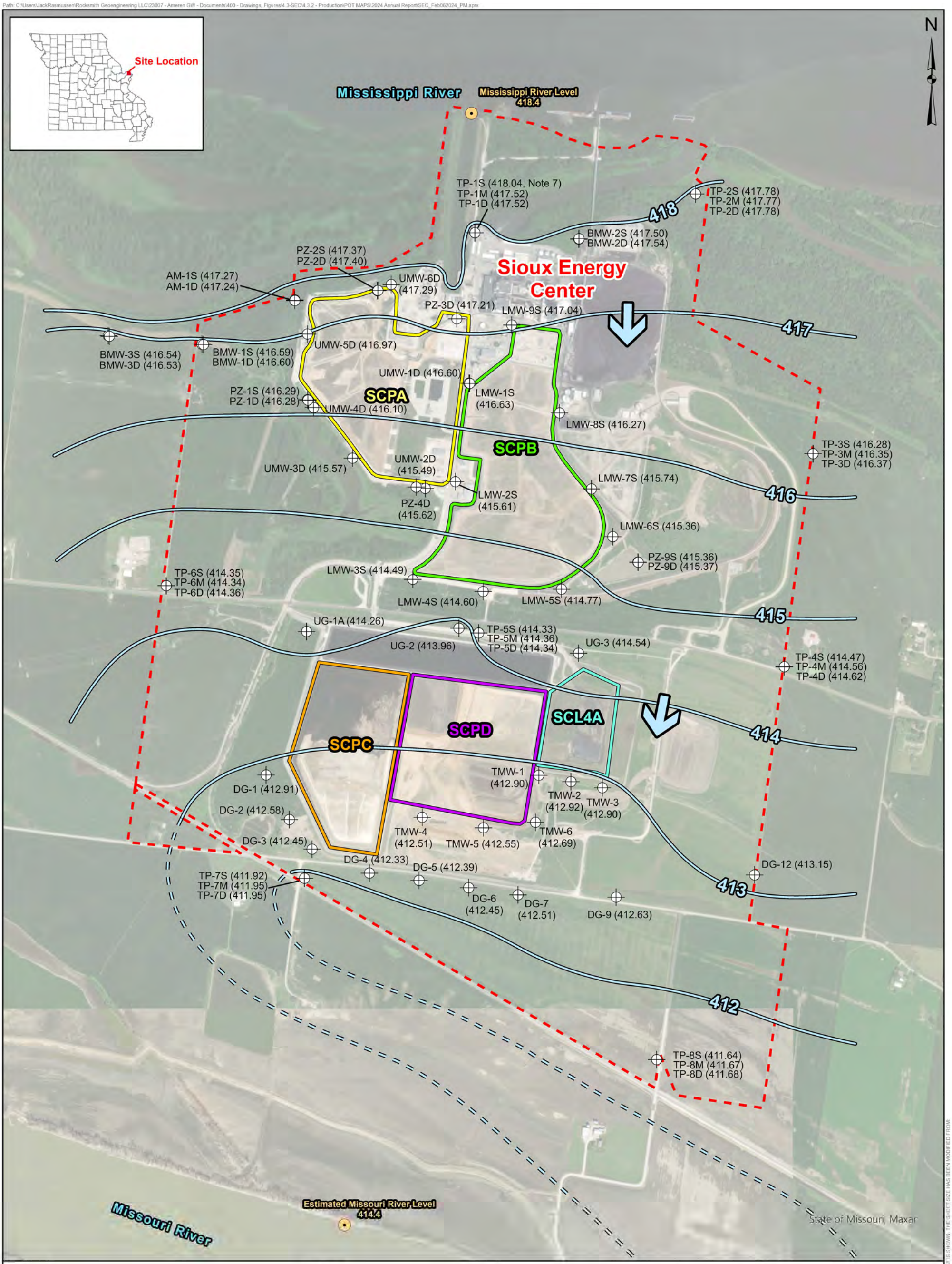
Analyte	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	6.4%	7.9%	23%
BORON, TOTAL	2.7%	3.1%	0.74%
CALCIUM, TOTAL	19%	23%	2.6%
CHLORIDE, TOTAL	0.93%	1.1%	3.6%
FLUORIDE, TOTAL	0.1%	0.028%	0.12%
IRON, TOTAL	0.0048%	0.0016%	0.0048%
MAGNESIUM, TOTAL	2.1%	0.44%	0.0027%
MANGANESE, TOTAL	0.007%	0.00083%	0.000062%
POTASSIUM, TOTAL	2.1%	1.9%	5.2%
SODIUM, TOTAL	4%	2.7%	22%
SULFATE, TOTAL	63%	60%	44%
Sum	100.0%	100.0%	100.0%

Notes
1) Values for pore-water samples from SCPB ASD Investigation collected in February-March 2018.
2) Unit abbreviations - mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Appendix D

2024 Potentiometric Surface Maps

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2024 Annual Report\SEC_Feb062024_PM.aprx



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.
7.) TP-1S NOT USED FOR POTENTIOMETRIC SURFACE CONTOURING.

REFERENCES

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).

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

TITLE
FEBRUARY 6, 2024 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	GTM	YYYY-MM-DD	2024-07-03
PREPARED	JTA	PROJECT No.	23009-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D1

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

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2024 Annual Report\SEC_May242024_PM.aprx

N

Mississippi River

Mississippi River Level
417.4

TP-2S (417.05)
TP-2M (417.07)
TP-2D (417.06)

TP-1S (417.27)
TP-1M (417.35)
TP-1D (417.40)

BMW-2S (417.26)
BMW-2D (417.29)

Sioux Energy Center

AM-1S (417.90)
AM-1D (417.90)

UMW-6D (417.64)

PZ-2S (417.81)
PZ-2D (417.84)

PZ-3D (417.84)

LMW-9S (417.72)

UMW-5D (417.91)

BMW-3S (418.16)
BMW-3D (418.13)

BMW-1S (418.04)
BMW-1D (418.02)

UMW-1D (417.86)

PZ-1S (418.05)
PZ-1D (418.05)

SCPA

LMW-1S (417.88)

LMW-8S (417.62)

UMW-4D (417.97)

UMW-3D (417.92)

SCPB

TP-3S (417.15)
TP-3M (417.16)
TP-3D (417.20)

LMW-2S (417.78)

LMW-7S (417.57)

PZ-4D
(418.03)

UMW-2D (417.89)

LMW-6S (417.45)

PZ-9S (417.60)
PZ-9D (417.61)

TP-6S (418.32)
TP-6M (418.30)
TP-6D (418.32)

LMW-3S (417.99)

LMW-4S
(417.80)

LMW-5S (417.68)

UG-2 (417.71)

UG-1A (418.54)

TP-5S (418.00)
TP-5M (418.04)
TP-5D (418.03)

UG-3 (418.06)

TP-4S (417.04)
TP-4M (417.11)
TP-4D (417.13)

SCPC

SCPD

SCL4A

DG-1 (419.11)

TMW-1 (418.05)

TMW-2 (417.99)

TMW-3 (417.97)

DG-2 (419.21)

TMW-4 (418.58)

TMW-5 (418.45)

TMW-6 (418.33)

DG-3 (419.22)

DG-5 (419.02)

418

DG-12 (417.97)

TP-7S (418.98)
TP-7M (418.98)
TP-7D (418.99)

DG-4
(419.11)

DG-6 (418.87)

DG-7 (418.81)

DG-9 (418.41)

TP-8S (418.30)
TP-8M (418.30)
TP-8D (418.31)

419

Estimated Missouri River Level
420.6

Missouri River

420

State of Missouri, Maxar

LEGEND

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- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

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- Monitoring Well or Piezometer
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6.) FGD - FLUE GAS DESULFURIZATION.

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

TITLE
MAY 24, 2024 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	GTM	YYYY-MM-DD	2024-07-03
PREPARED	JTA	PROJECT No.	23009-24
REVIEW	GTM	FIGURE D2	
APPROVED	MNH		

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

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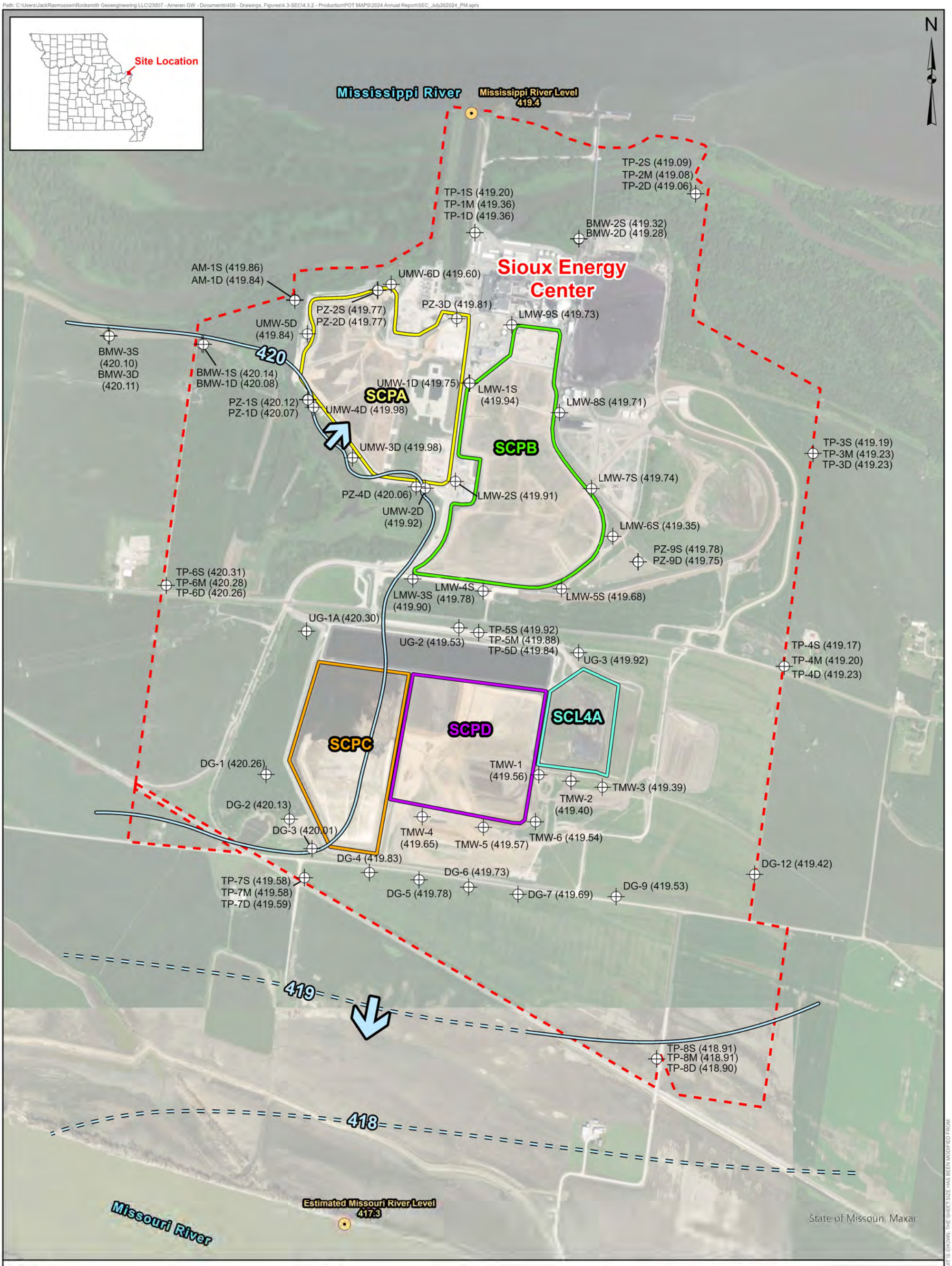

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0 500 1,000 1,500 2,000 Feet

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.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
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 26, 2024 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	GTM	YYYY-MM-DD	2024-09-11
PREPARED	JTR	PROJECT No.	23009-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D3

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

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.3-SEC\4.3.2 - Production\POT MAPS\2024 Annual Report\SEC_November242024_PM.aprx

N

Mississippi River

Mississippi River Level
419.6

Sioux Energy Center

TP-1S (419.26, Note 7)
TP-1M (418.87)
TP-1D (418.86)

TP-2S (419.07)
TP-2M (419.06)
TP-2D (419.07)

419

BMW-2S (418.84)
BMW-2D (418.84)

AM-1S (418.81)
AM-1D (418.79)

PZ-2S (418.84)
PZ-2D (418.87)

UMW-6D
(418.68)

PZ-3D
(418.69)

LMW-9S (418.48)

BMW-1S (418.39)
BMW-1D (418.35)

UMW-5D (418.59)

BMW-3S (418.45)
BMW-3D (418.43)

UMW-1D
(418.24)

PZ-1S (418.19)
PZ-1D (418.19)

UMW-4D
(418.02)

SCPA

LMW-1S (418.24)

LMW-8S (418.92)

SCPB

418

UMW-3D (417.66)

TP-3S (417.94)
TP-3M (417.92)
TP-3D (417.91)

PZ-4D
(417.71)

LMW-2S
(417.59)

LMW-7S (417.64)

UMW-2D
(417.58)

LMW-6S (417.42)

PZ-9S (417.47)
PZ-9D (417.48)

TP-6S (416.97)
TP-6M (416.97)
TP-6D (416.96)

LMW-4S
(416.93)

LMW-3S
(416.93)

LMW-5S (417.06)

417

UG-1A (416.95)

UG-2
(416.47)

TP-5S (416.93)
TP-5M (416.84)
TP-5D (416.87)

UG-3 (416.96)

TP-4S (416.64)
TP-4M (416.64)
TP-4D (416.71)

SCPD

SCL4A

SCPC

416

DG-1 (416.11)

TMW-1 (415.81)

TMW-3 (415.69)

TMW-2
(415.70)

DG-2 (415.80)

TMW-4
(415.54)

TMW-5
(415.53)

TMW-6 (415.58)

DG-3
(415.65)

DG-12 (415.84)

TP-7S (415.13)
TP-7M (415.13)
TP-7D (415.13)

DG-4
(415.50)

DG-5 (415.51)

DG-6 (415.50)

DG-9 (415.54)

DG-7 (415.54)

415

TP-8S (414.72)
TP-8M (414.72)
TP-8D (414.71)

Missouri River

Estimated Missouri River Level
415.3

State of Missouri, Maxar

LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment (Closed)
- SCPB - Fly Ash Surface Impoundment (Closed)
- SCPC - WFGD Surface Impoundment (Closed)
- SCL4A - Dry CCR Disposal Area
- SCPD - FGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) FGD - FLUE GAS DESULFURIZATION.
7.) TP-1S NOT USED FOR POTENTIOMETRIC SURFACE CONTOURING.

REFERENCES

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).

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

TITLE
NOVEMBER 14, 2024 POTENTIOMETRIC SURFACE MAP

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	GTM	YYYY-MM-DD	2024-12-19
PREPARED	JTR	PROJECT No.	23009-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 11 in 0