#### REPORT

# 2023 Annual Groundwater Monitoring and Corrective Action Report

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

January 31, 2024 Project Number: 23009

#### 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 SCPC GROUNDWATER MONITORING PROGRAM

This annual report was developed to meet the requirements of United States Environmental Protection Agency (USEPA) 40 CFR Part 257 "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule" (the CCR Rule). The CCR Rule requires owners or operators of existing CCR units to produce an Annual Groundwater Monitoring and Corrective Action Report (Annual Report) each year (§ 257.90(e)). Ameren Missouri (Ameren) has determined that the Utility Waste Landfill (UWL) SCPC Surface Impoundment (or Cell 1) at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This Annual Report for the SCPC describes CCR Rule groundwater monitoring activities from January 1, 2023 through December 31, 2023 including verification results related to late 2022 sampling.

Throughout 2023, the SCPC 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 were determined during each sampling event and a summary of the SSIs for the past year is provided in **Table 1**.

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt	Parameters Collected	Verified SSIs	SSI Determination Date	ASD Completion Date
2022 Sampling Event	Detection Monitoring, October 18- 21, 2022	November 22, 2022	Appendix III, Major Cations and Anions	<b>TDS:</b> DG-3	February 20,	May 19, 2023
October 20	Verification Sampling, January 3-4, 2023	January 18, 2023	Detected Appendix III parameters <sup>(See</sup> <sub>Note 1)</sub>	- <u>100</u> -000	2023	1110, 2020
2023 Sampling Event	Detection Monitoring, May 2-3, 2023	June 21, 2023	Appendix III, Major Cations and Anions	Boron: UG-2	September 19,	December
May 2023 Sa	Verification Sampling, July 11 & August 1, 2023	July 25 & August 15, 2023	Detected Appendix III parameters	<u>Sulfate:</u> DG-3 <u>TDS:</u> DG-3	2023	18, 2023
November 2023 Sampling Event	Detection Monitoring, November 10-13, 2023	December 27, 2023	Appendix III, Major Cations and Anions	To be determined after statistical analy completed i		n Sampling are

#### Table 1 - Summary of 2023 SCPC Sampling Events, Previous Year Verification, and Statistical Evaluations

Notes:

1) Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

- 2) SSI Statistically Significant Increase.
- 3) ASD Alternative Source Demonstration.

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 2023 with no new wells being installed or decommissioned.

CCR placement within the SCPC has ceased as of December 14, 2022 and CCR was routed to the newly constructed cell east of the SCPC called the SCPD. More information on the SCPD Cell is provided in the SCPD Annual Report. Additionally, as required by the CCR Rule (§ 257.102(e)(1)), closure design has been initiated for the SCPC.



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Appendix B - Alternative Source Demonstration - October 2022 Sampling Event

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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 SCPC. The groundwater monitoring system consists of 8 groundwater monitoring wells screened in the uppermost aquifer and is displayed in **Figure 1** and is listed on **Table 2**, below. No new monitoring wells were installed or decommissioned in 2023 as a part of the CCR Rule monitoring program for the SCPC. For more information on the groundwater monitoring network, details are provided in the previous Annual Groundwater Monitoring Reports for the SCPC.

#### 2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the SCPC CCR Unit in 2023. **Table 2** below provides a summary of the groundwater samples collected in 2023 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

			G	roundwater M	onitoring We	lls						
Sampling Event	BMW-1S	BMW-3S	UG-1A	UG-2 DG-1		DG-2	DG-3	DG-4	Monitoring Program			
	Date of Sample Collection											
January 2023 Verification Sampling	-	-	1/4/2023	-	-	1/3/2023	1/3/2023	-	Detection			
May 2023 Sampling Event	5/2/2023	5/2/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	Detection			
July 2023 Verification Sampling	-	-	-	7/11/2023	-	-	7/11/2023*	-	Detection			
November 2023 Sampling Event	11/10/2023	11/10/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023	Detection			
Total Number of Samples Collected	2	2	3	3	2	3	4	2	NA			

Notes:

1) Detection Monitoring events tested for Appendix III Parameters.

2) Only analytes/wells that were detected above the prediction limit were tested during verification sampling.

- 3) "-" No sample collected.
- 4) NA Not applicable.
- 5) \*Total Dissolved Solids sampled at DG-3 was collected on August 1, 2023.

#### 2.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed October 18-21, 2022. Verification sampling and the statistical analyses to evaluate for SSIs for the October 2022 event were not completed until 2023 and are included in this report. Detections above respective prediction limits for some Appendix III analytes triggered a verification sampling event, which was completed January 3-4, 2023 and verified one SSI. **Table 3** summarizes



the results and statistical analysis of the October 2022 Detection Monitoring event. Laboratory analytical data from the January 2023 verification sampling event through the November 2023 sampling event are provided in **Appendix A**. Laboratory analytical data for the October 2022 Detection Monitoring event are provided in the 2022 Groundwater Monitoring and Corrective Action Annual Report for the SCPC.

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 this SSI and is provided in **Appendix B**. This ASD demonstrates that the SSI at monitoring well DG-3 is not caused by the SCPC CCR Unit, and therefore, the SCPC CCR Unit remains in Detection Monitoring.

Detection Monitoring samples were collected May 2-3, 2023, and testing was completed for all Appendix III analytes, as well as major cations and anions. Detections above respective prediction limits for some Appendix III analytes triggered a verification sampling event, which was completed on July 11 as well as August 1, 2023 and verified SSIs. **Table 4** summarizes the results and statistical analyses of the May 2023 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 SCPC CCR unit, as demonstrated by the ASD provided in **Appendix C**.

A Detection Monitoring sampling event was completed November 10-13, 2023 and testing was completed for all Appendix III analytes, as well as major cations and anions. The statistical analysis to evaluate for SSIs in the November 2023 data were not completed in 2023 and the results will be provided in the 2024 Annual Report. **Table 5** summarizes the results of the November 2023 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 2023 as a result of river levels in the Missouri and Mississippi Rivers. From 2016 through 2022, horizontal gradients have 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. Since July 2022, due to low Missouri River levels, there has been a more prevalent southward flow direction at a rate of approximately 35 feet per year.

#### 2.3 Sampling Issues

After the May 2023 Detection Monitoring event, wells UG-2 and DG-3 were sampled on July 11, 2023 to verify boron and sulfate SSIs. Following receipt of this data, it was determined that the TDS value at well DG-3 collected on May 3, 2023 was in exceedance of the prediction limit and required a verification sample. The initial sample bottle collected on July 11 was outside of USEPA method holding time for TDS analysis, so an additional verification sample at DG-3 was collected on August 1, 2023.

No other notable sampling issues were encountered at the SCPC in 2023.



#### 3.0 ACTIVITIES PLANNED FOR 2024

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2024. Statistical analysis of the November 2023 Detection Monitoring data will be completed in 2024 and will be included in the 2024 Annual Report.



# Tables



#### Table 3 October 2022 Detection Monitoring Results SCPC Surface Impoundment Sioux Energy Center, St. Charles County, MO

		BACKGR	OUND					GROU	JNDWATER M	IONITORING V	VELLS				
ANALYTE	UNITS	BMW-1S	BMW-3S	Prediction Limit UG-1A	UG-1A	Prediction Limit UG-2	UG-2	Prediction Limit DG-1	DG-1	Prediction Limit DG-2	DG-2	Prediction Limit DG-3	DG-3	Prediction Limit DG-4	DG-4
	October 2022 Detection Monitoring Event														
DATE	NA	10/18/2022	10/18/2022	NA	10/21/2022	NA	10/21/2022	NA	10/20/2022	NA	10/21/2022	NA	10/21/2022	NA	10/21/2022
рН	SU	6.84	7.01	6.423-7.284	6.26	6.29-7.36	7.00	6.653-7.324	6.95	6.681-7.341	6.93	6.64-7.251	6.89	6.617-7.24	6.94
BORON, TOTAL	μg/L	73.0 J	84.2 J	462.2	ND	264.7	184	118.8	ND	114.3	ND	103.9	ND	114.5	ND
CALCIUM, TOTAL	μg/L	168,000	131,000	204,191	109,000	146,120	122,000	174,000	131,000	161,503	130,000	168,024	162,000	167,122	136,000
CHLORIDE, TOTAL	mg/L	9.2	11.7	147.5	6.4	98.49	59.2	10	3.4	10.72	2.8	17.71	3.3	111.7	54.0
FLUORIDE, TOTAL	mg/L	0.20 J	0.22	0.4	0.47	0.3257	ND	0.3803	ND	0.4553	ND	0.4775	ND	0.4524	ND
SULFATE, TOTAL	mg/L	61.1	27.8	115.8	72.2	95.94	47.3	71.52	28.1	68.0	32.3	72.94	63.8	80.26	52.0
TOTAL DISSOLVED SOLIDS	mg/L	711	467	810.6	279	758	649	548.8	517	537.9	1,320 J	592.9	622	808	636
						January 2023	Verification S	ampling Event	t						
DATE	NA				1/4/2023						1/3/2023		1/3/2023		
рН	SU				7.04										
BORON, TOTAL	μg/L														
CALCIUM, TOTAL	μg/L														
CHLORIDE, TOTAL	mg/L														
FLUORIDE, TOTAL	mg/L				ND										
SULFATE, TOTAL	mg/L														
TOTAL DISSOLVED SOLIDS	mg/L										474		595		

NOTES:

1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.

2. J - Result is an estimated value.

3. NA - Not applicable.

4. Prediction Limits calculated using Sanitas Software.

5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).

6. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).

7. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

8. 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.

#### Table 4 May 2023 Detection Monitoring Results SCPC Surface Impoundment Sioux Energy Center, St. Charles County, MO

		BACKGR	OUND					GROU	NDWATER M	IONITORING W	VELLS				
ANALYTE	UNITS	BMW-1S	BMW-3S	Prediction Limit UG-1A	UG-1A	Prediction Limit UG-2	UG-2	Prediction Limit DG-1	DG-1	Prediction Limit DG-2	DG-2	Prediction Limit DG-3	DG-3	Prediction Limit DG-4	DG-4
						May 2023 D	etection Mon	itoring Event						-	
DATE	NA	5/2/2023	5/2/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023
рН	SU	6.80	6.95	6.423-7.284	6.95	6.29-7.36	7.09	6.653-7.324	6.95	6.681-7.341	6.98	6.64-7.251	6.90	6.617-7.24	6.90
BORON, TOTAL	μg/L	64.8 J	67.1 J	462.2	89.9 J	264.7	458	118.8	96.9 J	114.3	75.5 J	103.9	83.6 J	114.5	91.4 J
CALCIUM, TOTAL	μg/L	184,000	137,000	204,191	138,000	146,120	115,000	174,000	129,000	161,503	126,000	168,024	159,000	167,122	139,000
CHLORIDE, TOTAL	mg/L	13.1	12.6	147.5	79.9	98.49	37.2	10	3.6	10.72	2.8	17.71	6.9	111.7	25.4
FLUORIDE, TOTAL	mg/L	ND	ND	0.4	ND	0.3257	ND	0.3803	ND	0.4553	ND	0.4775	ND	0.4524	ND
SULFATE, TOTAL	mg/L	37.7	32.4	115.8	49.4	95.94	51.8	71.52	29.5	68	28.4	72.94	76.3	80.26	56.9
TOTAL DISSOLVED SOLIDS	mg/L	610	495	810.6	622	758	496	548.8	499	537.9	481	592.9	640	808	601
						July 2023 V	erification Sa	npling Event							
DATE	NA						7/11/2023						7/11/2023 <sup>8</sup>		
рН	SU														
BORON, TOTAL	μg/L						291								
CALCIUM, TOTAL	μg/L														
CHLORIDE, TOTAL	mg/L														
FLUORIDE, TOTAL	mg/L														
SULFATE, TOTAL	mg/L												75.8		
TOTAL DISSOLVED SOLIDS	mg/L												665		

NOTES:

1. Unit Abbreviations:  $\mu g/L$  - micrograms per liter, mg/L - milligrams per liter, SU - standard units.

2. J - Result is an estimated value.

3. NA - Not applicable.

4. Prediction Limits calculated using Sanitas Software.

5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).

6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a

non-detect. Values displayed as ND.

8. Total Dissolved Solids sample at DG-3 collected on 8/1/2023.

# Table 5November 2023 Detection Monitoring ResultsSCPC Surface ImpoundmentSioux Energy Center, St. Charles County, MO

		BACKG	ROUND		GROU	JNDWATER M	ONITORING V	VELLS					
ANALYTE	UNITS	BMW-1S	BMW-3S	UG-1A	UG-2	DG-1	DG-2	DG-3	DG-4				
	November 2023 Detection Monitoring Event												
DATE	NA	11/10/2023	11/10/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023	11/13/2023				
рН	SU	7.04	7.14	6.90	7.10	7.00	7.02	6.93	6.88				
BORON, TOTAL	μg/L	57.9 J	58.9 J	165	1,700	107	82.0 J	81.9 J	105				
CALCIUM, TOTAL	μg/L	136,000	114,000	157,000	119,000	138,000	133,000 J	160,000	154,000				
CHLORIDE, TOTAL	mg/L	7.2	13.4	74.8 J	12.9 J	2.5 J	2.3 J	8.2 J	12.4 J				
FLUORIDE, TOTAL	mg/L	ND	ND	ND	ND	ND	ND	ND	ND				
SULFATE, TOTAL	mg/L	46.9	12.3	52.7 J	0.79 J	19.4 J	35.2 J	65.1 J	63.3 J				
TOTAL DISSOLVED SOLIDS	mg/L	475	398	672	483	549	505	594	732				

NOTES:

1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.

2. J - Result is an estimated value.

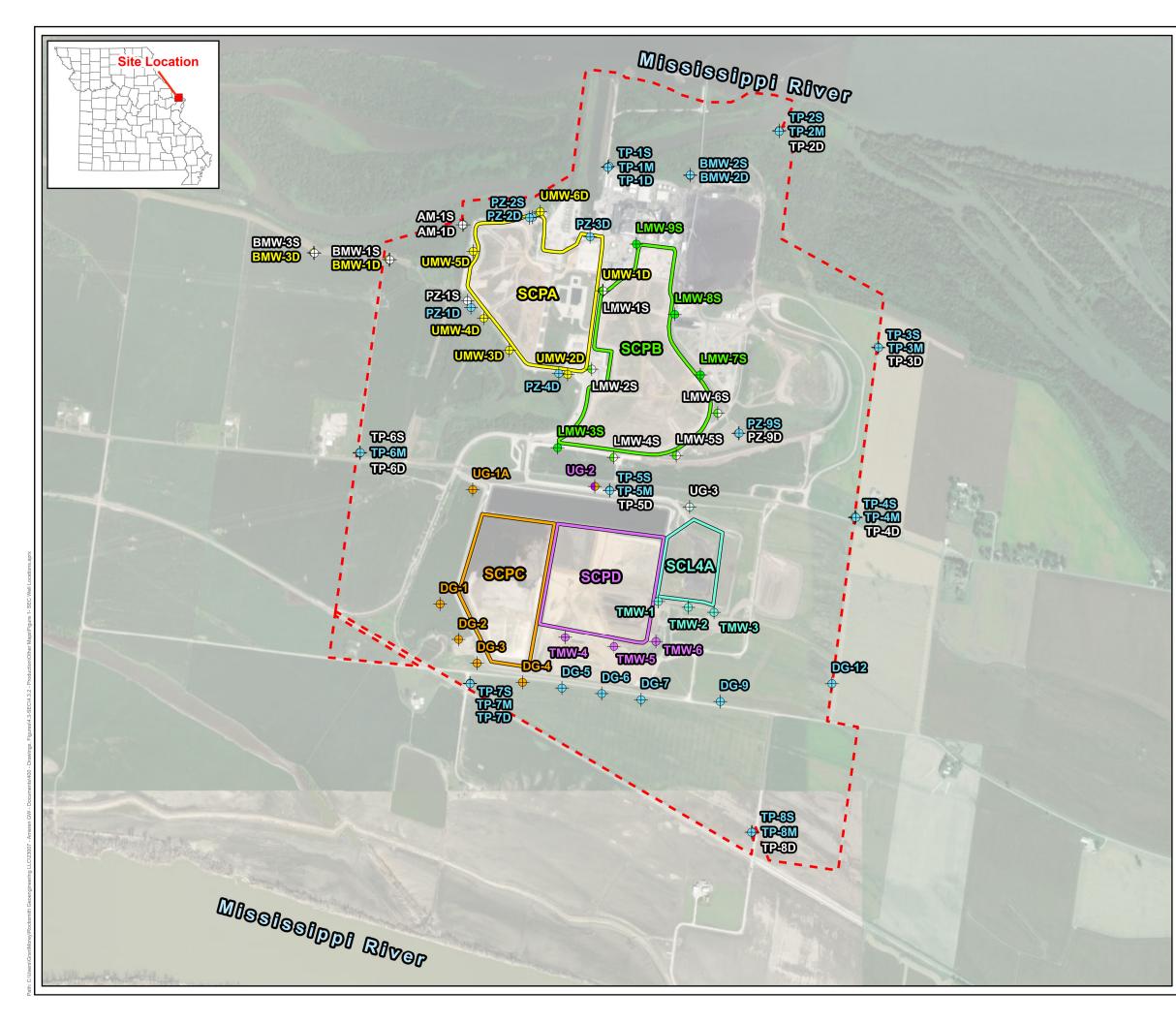
3. NA - Not applicable.

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: GTM Checked By: JSI Reviewed By: MNH

# Figures





#### SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

#### Legend

	-
CD	Sioux Energy Center Property Boundary
CCR	Units
	SCPA - Bottom Ash Surface Impoundment (Closed)
	SCPB - Fly Ash Surface Impoundment (Closed)
Utilit	y Waste Landfill Cells
	SCL4A - Dry CCR Disposal Area
	SCPC - Inactive FGD Surface Impoundment (Closure in Progress)
	SCPD - FGD Surface Impoundment
Moni	toring Well Networks
$\oplus$	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
<b>+</b>	SCPD Detection Monitoring Well
4	SCI 4A and Corrective Action Monitoring Well

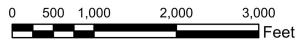
- $\oplus$ SCL4A and Corrective Action Monitoring Well
- $\blacklozenge$ SCL4A Detection Monitoring Well
- $\blacklozenge$ Monitoring Well Used for Water Level Elevation Measurements Only

#### NOTES

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

#### REFERENCES

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



#### PROJE

CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT AMEREN MISSOURI SIOUX ENERGY CENTI	ER		<b>Ameren</b>
	DESIGN	JSI	YYYY-MM-DD 2023-03-29
	PREPARED	JSI	PROJECT No. 23009
	REVIEW	GTM	
	APPROVED	MNH	FIGURE 1

### Appendix A Laboratory Analytical Data





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

January 18, 2023

Jeffrey Ingram WSP Golder 701 Emerson Road Suite 250 Saint Louis, MO 63141

RE: Project: AMEREN SEC SCPC Pace Project No.: 60419220

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on January 05, 2023. 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,

Parmi Church

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

Enclosures

cc: Mark Haddock, Golder Associates Lisa Meyer, Ameren Grant Morey, WSP Golder Ann Muehlfarth, WSP Golder Eric Schneider, WSP Golder





#### CERTIFICATIONS

Project: AMEREN SEC SCPC

Pace Project No.: 60419220

#### Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219 Missouri Inorganic Drinking Water Certification #: 10090 Arkansas Drinking Water Arkansas Certification #: 22-031-0 Illinois Certification #: 2000302021-3 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 #: T104704407-21-15 Utah Certification #: KS000212022-12 Illinois Certification #: 004592 Kansas Field Laboratory Accreditation: # E-92587 Missouri SEKS Micro Certification: 10070



#### SAMPLE SUMMARY

Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Lab ID Sample ID Matrix Date Collecte	d Date Received
60419220001 S-DG-2 Water 01/03/23 10:2	5 01/05/23 03:55
<b>60419220002 S-DG-3</b> Water 01/03/23 10:4	2 01/05/23 03:55
<b>60419220003 S-UG-1A</b> Water 01/04/23 11:2	7 01/05/23 03:55
<b>60419220004</b> S-SCPC-FB-1 Water 01/03/23 10:4	7 01/05/23 03:55
60419220005         S-SCPC-DUP-1         Water         01/04/23 00:0	0 01/05/23 03:55



#### SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPC Pace Project No.: 60419220

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60419220001	S-DG-2	SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	1	PASI-K
60419220002	S-DG-3	SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	1	PASI-K
60419220003	S-UG-1A	SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	1	PASI-K
60419220004	S-SCPC-FB-1	SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	1	PASI-K
60419220005	S-SCPC-DUP-1	SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City



Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Sample: S-DG-2	Lab ID: 60419220001		Collected: 01/03/23 10:25			Received: 01	trix: Water				
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
2540C Total Dissolved Solids		Method: SM 25 lytical Services		ity							
Total Dissolved Solids	474	mg/L	10.0	10.0	1		01/10/23 09:32				
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City									
Fluoride	<0.12	mg/L	0.20	0.12	1		01/06/23 20:31	16984-48-8			



Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Sample: S-DG-3	Lab ID: 60419220002		Collected: 01/03/23 10:42			Received: 01	trix: Water					
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual			
2540C Total Dissolved Solids		Method: SM 25 ytical Services		lity								
Total Dissolved Solids	595	mg/L	10.0	10.0	1		01/10/23 09:32					
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City										
Fluoride	<0.12	mg/L	0.20	0.12	1		01/06/23 21:51	16984-48-8				



Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Sample: S-UG-1A	Lab ID:	60419220003	Collecte	d: 01/04/23	3 11:27	Received: 01	/05/23 03:55 Ma	trix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids		Method: SM 25 ytical Services		ity					
Total Dissolved Solids	419	mg/L	10.0	10.0	1		01/11/23 10:08		
300.0 IC Anions 28 Days		Method: EPA 3 ytical Services		ity					
Fluoride	<0.12	mg/L	0.20	0.12	1		01/06/23 22:04	16984-48-8	



Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Sample: S-SCPC-FB-1	Lab ID:	60419220004	Collected	d: 01/03/23	3 10:47	Received: 01	/05/23 03:55 Ma	trix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids		Method: SM 25 lytical Services		ity					
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		01/10/23 09:32		
300.0 IC Anions 28 Days		Method: EPA 3 lytical Services		ity					
Fluoride	<0.12	mg/L	0.20	0.12	1		01/06/23 22:18	16984-48-8	



Project: AMEREN SEC SCPC

Pace Project No.: 60419220

Sample: S-SCPC-DUP-1	Lab ID:	60419220005	Collecte	d: 01/04/23	3 00:00	Received: 01/	/05/23 03:55 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids		Method: SM 25 lytical Services		ity					
Total Dissolved Solids	430	mg/L	10.0	10.0	1		01/11/23 10:08		
300.0 IC Anions 28 Days		Method: EPA 3		ity					
Fluoride	<0.12	mg/L	0.20	0.12	1		01/06/23 22:31	16984-48-8	



Project:	AMEREN SEC S	CPC						
Pace Project No.:	60419220							
QC Batch:	826600		Analysis Me	thod:	SM 2540C			
QC Batch Method:	SM 2540C		Analysis De	scription:	2540C Total E	Dissolved Sol	ids	
			Laboratory:		Pace Analytic	al Services -	Kansas C	Sity
Associated Lab Sar	nples: 60419220	0001, 604192200	02, 60419220004					
METHOD BLANK:	3283344		Matrix	Water				
Associated Lab Sar	nples: 60419220	0001, 604192200	02, 60419220004					
			Blank	Reporting				
Paran	neter	Units	Result	Limit	MDL	An	alyzed	Qualifiers
Total Dissolved Soli	ds	mg/L	<5.0	5	.0	5.0 01/10	/23 09:30	
LABORATORY CO	NTROL SAMPLE:	3283345						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc	Result	% Rec	Limits	Qu	alifiers
Total Dissolved Soli	ds	mg/L	1000	988	99	80-1	20	
SAMPLE DUPLICA	TE: 3283346			_				
Dama	a a ta r	Linita	60419220001	Dup	RPD		ax	Qualifiere
Paran		Units	Result	Result		RI		Qualifiers
Total Dissolved Soli	ds	mg/L	474	47	76	0	10	
SAMPLE DUPLICA	TE: 3283347							
-			60419223002	Dup			ax	
Paran		Units	Result	Result	RPD	RI		Qualifiers
Total Dissolved Soli	ds	mg/L	464	46	6	0	10	

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



Project:	AMEREN SEC SO	CPC							
Pace Project No.:	60419220								
QC Batch:	826840		Analysis Mo	ethod:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis De	escription:	2540C Total E	Dissolv	ed Solids		
			Laboratory		Pace Analytic	al Ser	vices - Kar	nsas C	ity
Associated Lab Sar	nples: 60419220	0003, 60419220005							
METHOD BLANK:	3284069		Matrix	: Water					
Associated Lab Sar	nples: 60419220	0003, 60419220005							
			Blank	Reporting					
Paran	neter	Units	Result	Limit	MDL		Analyz	ed	Qualifiers
Total Dissolved Soli	ds	mg/L	<5.0	) 5	5.0	5.0	01/11/23	10:08	
LABORATORY CO	NTROL SAMPLE:	3284070							
			Spike	LCS	LCS	%	Rec		
Paran	neter	Units	Conc.	Result	% Rec	L	imits	Qua	alifiers
Total Dissolved Soli	ds	mg/L	1000	999	100		80-120		
SAMPLE DUPLICA	TE: 3284071								
_			60419197001	Dup			Max		0 11/1
Paran		Units	Result	Result	RPD		RPD		Qualifiers
Total Dissolved Soli	ds	mg/L	1700	) 17	50	3		10	
SAMPLE DUPLICA	TE: 3284072								
-			60419233007	Dup			Max		
Parar	neter	Units	Result	Result	RPD		RPD		Qualifiers
Total Dissolved Soli	ds	mg/L	5580	) 53	00	5		10	

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



•	SEC SCPC										
Pace Project No.: 60419220 QC Batch: 826128			Analysis Met	bod	EPA 300.0						
QC Batch Method: EPA 300	0		-		300.0 IC An	iono					
QC baich Method: EPA 300	.0		Analysis Des				kanaa	City			
Associated Lab Samples: 60	0419220001, 604 <sup>-</sup>		aboratory: 19220003, 6		Pace Analyt 604192200		es - Kansas	City			
METHOD BLANK: 3281888			Matrix:	Water							
Associated Lab Samples: 60	0419220001, 6041	19220002, 604	19220003, 6	0419220004,	604192200	05					
_			Blank	Reporting				-			
Parameter	Ur	nits	Result	Limit	MDI		Analyzed	Qu	alifiers		
Fluoride	m	g/L	<0.12	0.2	20	0.12 01	/06/23 16:4	44			
METHOD BLANK: 3283714			Matrix:	Water							
	0419220001, 604 <sup>2</sup>	19220002 604			604192200	05					
	J-10220001, 004	0220002,004	Blank	Reporting	007132200						
Parameter	Ur	nits	Result	Limit	MDI	_	Analyzed	Qu	alifiers		
Fluoride											
Fluoride		g/L	<0.12	0.2	.0	0.12 01	/09/23 19:4	+5			
LABORATORY CONTROL SAI	MPLE: 3281889	)									
		Sp	oike	LCS	LCS	% Re					
Parameter	Ur	nits Co	onc. F	Result	% Rec	Limit	ts C	Qualifiers	_		
Fluoride	m	g/L	2.5	2.5	102	2 9	90-110				
LABORATORY CONTROL SAI	MPLE: 3283715	5									
		Sp	oike	LCS	LCS	% Re	ЭC				
Parameter	Ur	nits Co	onc. F	Result	% Rec	Limit	ts C	Qualifiers			
Fluoride	m	g/L	2.5	2.4	97	7 9	90-110		_		
MATRIX SPIKE & MATRIX SPI		3281890		328189	1						
		MS	MSD	020100							
	604192			MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units Re	esult Conc		Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	<0.12	2.5 2		1.9	76	74	80-120	2	15	M1
MATRIX SPIKE & MATRIX SPI	KE DUPLICATE:	3281893		3281894	4						
-		MS	MSD								
	60/102	20001 Spike		MS	MSD	MS	MSD	% Rec		Max	
	004132										- ·
Parameter		esult Conc	. Conc.		Result	% Rec	% Rec	Limits	RPD	RPD	Qual

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

#### **REPORT OF LABORATORY ANALYSIS**

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Project: AMEREN SEC SCPC

Pace Project No.: 60419220

MATRIX SPIKE & MATRIX S	PIKE DUPI	LICATE: 3281			3281897							
		60419222001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	<1.2	25	25	28.0	28.3	112	113	80-120	1	15	
MATRIX SPIKE & MATRIX S	PIKE DUPI	_ICATE: 3281			3281900							
		60440222002	MS	MSD Spiles	MC	MSD	MC	MSD	0/ Dee		Max	
Parameter	Units	60419223002 Result	Spike Conc.	Spike Conc.	MS Result	Result	MS % Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	<0.62	12.5	12.5	14.9	14.3	119	113	80-120	5	15	
SAMPLE DUPLICATE: 328	1892											
Parameter		Units	604192 Res		Dup	RPD		Max RPD	Qualif	ioro		
			Res		Result					lers		
Fluoride		mg/L		<0.12	<0.12	2		15	)			
SAMPLE DUPLICATE: 328	1895		00.1100	00004	Dur							
Parameter		Units	604192 Res		Dup Result	RPD	)	Max RPD	Qualif	iers		
Fluoride		mg/L		<0.12	<0.12	2		15	5			
SAMPLE DUPLICATE: 328	1898											
Parameter		Units	604192 Res		Dup Result	RPD	<b>`</b>	Max RPD	Qualif	iore		
Fluoride	·	mg/L		<1.2	<1.2			15				
		<del>g</del> , <del>-</del>			51.6	-						
SAMPLE DUPLICATE: 328	1901											
Parameter		Units	604192 Res		Dup Result	RPI	D	Max RPD	Qualif	iers		
Fluoride		mg/L		<0.62	<0.62	,		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**

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#### QUALIFIERS

#### Project: AMEREN SEC SCPC

Pace Project No.: 60419220

#### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

**RPD** - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

#### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPC Pace Project No.: 60419220

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
60419220001	 S-DG-2	SM 2540C	826600		
60419220002	S-DG-3	SM 2540C	826600		
60419220003	S-UG-1A	SM 2540C	826840		
60419220004	S-SCPC-FB-1	SM 2540C	826600		
60419220005	S-SCPC-DUP-1	SM 2540C	826840		
60419220001	S-DG-2	EPA 300.0	826128		
60419220002	S-DG-3	EPA 300.0	826128		
60419220003	S-UG-1A	EPA 300.0	826128		
60419220004	S-SCPC-FB-1	EPA 300.0	826128		
60419220005	S-SCPC-DUP-1	EPA 300.0	826128		

					MC	)#:6	041	.9220
[-	Pace	DC#_Title: ENV	_		6041	9220		
		Revision: 2	Effective D	ate: 01/12/202	2 155050	Dy. Lenent	•	
Client Name:	_6	older Asso	Ciates			,		
Courier: FedE	Ex 🗆 UPS	🗆 VIA 🗆 Cla	y 🗆 🛛 PEX 🗆	ECI 🗆 🛛 F	Pace 🗆 🛛 X	roads 🗋 Cl	lient 🗆	Other 🗆
Tracking #:			Pace Shipp	oing Label Used?	Yes 🗆	Na		
Custody Seal on (	Cooler/Box	Present: Yes Z	No 🗆 🛛 Seals	s intact: Yes 🗹	No 🗆			
Packing Material:	_	-	le Bags 🗆	Foam □	None 🗆	Other		
Thermometer Use	ed:	296	Type of Ice:	Blue None		6	)ate and i	nitials of person
Cooler Temperatu	ıre (°C): A	As-read <u>/-5</u> C	orr. Factor 🗾 🦯	<u>2./</u> Corrected	d <u>/· Y</u>			contents:
Temperature should I	be above free.	zing to 6°C	/				_pv	1/5/22
Chain of Custody p	present:		Yes	s 🗆 No 🗆 N/A				
Chain of Custody r	elinquished:			s □No □N/A				
Samples arrived wi	ithin holding	time:		s □No □N/A				
Short Hold Time a	analyses (<7	72hr):	□Yes					
Rush Turn Aroun	d Time requ	lested:	□Yes					
Sufficient volume:	1		Tres	s ⊡No □N/A				
Correct containers	used:		ZYe:	s □No □N/A				
Pace containers us				s □No □N/A				
Containers intact:			1.	s □No □N/A				
	A / TX1005/	1006 soils frozen in 48						
Filtered volume rec					27			
		te / time / ID / analyse		s □No □N/A				
Samples contain m			/					
		vation in compliance?					lot #'s of	preservative and the
		llfide, NaOH>10 Cyanide		/ d	ate/time add	ed.		
(Exceptions: VOA, M Cyanide water sam		S TPH, OK-DRO)	LOT#:					
Lead acetate strip t	•	Record only)	□Yes	s □No				
Potassium iodide te	est strip turn	s blue/purple? (Preser	rve) □Yes	s 🗆 No				
Trip Blank present:			□Yes					
Headspace in VOA	vials ( >6m	m):	□Yes					
Samples from USD	A Regulated	d Area: State:	□Yes					
Additional labels at	tached to 50	35A / TX1005 vials in	the field? OYes					
<b>Client Notification</b>	/ Resolutio	n: Co	py COC to Client?	ΎΝ	Field Data	Required?	Y / M	N
Person Contacted:			Date/Time:					
Comments/ Resolu	tion:							
Project Manager Re	eview:			Date:				

..

Qualtrax Document ID: 30468

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

S USA, Inc. S USA, Inc. Regulatory Agency S USA, Inc. Regulatory Agency S Inc. Regulatory Agency S Inc. Regulatory Agency S Inc. Regulatory Agency S Inc. Regulatory Agency S Inc. NO S Inc. Regulatory Agency S Inc. NO S Inc. S Inc. NO S Inc. S Inc. S Inc. S Inc. NO S Inc. S Inc.	G	Section A Required Client Information:	Section B Required Project Information:	Information:				v, ⊑	Section C Invoice Information:	ation:				Г			Page:		oţ	_
ОПП (2012)         Сонта (2012)         Санати Name         Сонех (2012)         Recultations         Recultations <td>Gold</td> <td>ler Associates USA Inc.</td> <td>Report To: Jeffre</td> <td>sy Ingram</td> <td></td> <td></td> <td></td> <td>Att</td> <td>ention:</td> <td></td>	Gold	ler Associates USA Inc.	Report To: Jeffre	sy Ingram				Att	ention:											
ил мо 53/41 провесси по солона и провесси по провесс	701	Emerson Rd, Ste 250		Schnieder,	Grant M	orey		<u></u>	mpany Nan		er Associa	ates US/	Inc.	RE	SULATO	RY AGEN	X			0.000
Пападаровескол анана возвора вана соста вана соста	Cre	ve Coeur, MO 63141						Ad	dress:						NPDES		UND WAT		DRINKING	DRINKING WATER
Технолого валани         Технолого стати         Технолог	jeff	ev ingram@golder.com	Purchase Order N	0,1				Rei	ce Quote ference:						UST		A	L.	OTHER	
Teledidication         Teledididication         Teledidication         Teled	6-724					2		Pa	ce Project nager.	Jamie C	hurch			S	te Locati		ç			
Requested Analysis Fittered (Analysis Fitered (Analysis Fittered (Analysis Fittered (Analysis Fittered (	Due Da		Project Number.	GL153140	604			Pa	ce Profile #:	9285					STAT	,				
Mathematication         Mathematication         Mathematication         Mathematication           Watter construction         Mathematication         Mathematication         Mathematication         Mathematication           Watter construction         Mathematication												10.00	Reques	ted Ana	lysis Filt	ered (Y/N)				
Полнотики инстрист         Полнотики инстрист         Полнот	ction [ quired (		Codes	(awc	8	TTECTEL				Preserva	tives		z	z	z	z				
Received on the first of the first			DW SP WY OL SI	l	OSITE START		MPOSITE 1D/GRAB				-	t1					(N/X) ə			
WIT G     L     1(3/12)     10.25     I     X     X     X     X     X       MT G     L     WT G     L     1(4/12)     11/2     1/2	Samp		AR 15 TS					TA 9M9LE TEMP AT (	Unpreserved	HCI HNO <sup>3</sup>	Methanol Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	səT zizylsnA	Chloride	Sulfate			ninold) Chlorin			004 1922 0 Pace Project No./ Lab I.D.
Wr     Genvel on     Wr     L     1642     H     H     X     X     X     X       1     Wr     0     11/4/23     11/23     11/23     11/23     11/23     11/2     1			WT	-	⊢	-	-	t	×			_						381	n 20	
Mr     I/4/23     I/1/23     I/4/23     I/1     X     X     X     X       P-1     Wr     0     1/1/13     1/3/23     16477     1     1/3/23     16477     1     1/3/24     1/3/2		90	WT	0			-						×	×		_		Bpt	2	
1     WT     WT     1/13/13/104     1/13/13/13/104     1/13/13/13/104     1/13/13/13/13/13/104     1/13/13/13/13/13/13/13/13/13/13/13/13/13			WT	0		140		1 2					×					:		
P-1     WT     G     Hu133     XG     Hu133     XG       5-1     WT     G     Hu133     1255     L.H.     H     K     K       5.0-1     WT     G     Hu133     1255     L.H.     H     K     K       5.0-1     WT     G     Hu133     H     H     H     K     K       5.0-1     WT     G     HU133     H     H     H     K       WT     G     H     H     H     H     H       WT     G     H     H     H     H       WT     G     H     H     H     H       MT     G     H     H     H     H		176	WT	9		1131		I		-			×							
S-1     wr       wr		- SCPC- C	WT	U	11/1	<b>d</b> 3 <b>X</b>	0						~		_	-	1	>		
S.D-1 WT G L 1025 LH N X X X WT G WT C NTCY HCT 11 K X X X X WT G WT C NTCY HCT 11 L 1025 LH N X X X X X X X X X X X X X X X X X X		- Schc-	WT	U	2		_	1.00			_		×							1 12
WT     G     WT     H       WT     G     M     H       WT     G     M     H       WT     G     M     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H     H       M     Z     H       Sam<		PC-MSD	ŢŴ	U	4				1	_	_		×			_	_	WS/I		to lector U
MT     C     MT     C     MT     C       WT     C     WT     C     WT     C       WT     C     WT     C     MT     C       MM     C     WT     C     MT		5 46-19	100	9	#	1-4		╞	E			H					╞	24	7-	
WT     G       WT     Date       TIME     Accepted BYI AFFILATION       Date     TIME       Accepted BYI AFFILATION     Date       TIME     Accepted BYI AFFILATION       Date     TIME       Accepted BYI AFFILATION     Date       Time     Accepted BYI AFFILATION       Date     TIME       Accepted BYI AFFILATION     Date       Time     Accepted BYI AFFILATION       Date     TIME       Accepted BYI AFFILATION     Date       Time     Accepted BYI AFFILATION       Date     Time       Accepted BYI AFFILATION     Date       Sampler And Basicinature     Sampler Accepted BYI Accept		5-560-Dup-2	Lan	þ	Ħ	1/4/	1		1		#		1	1	1		Ħ	_		
WT     G     WT     G       WT     G     MT     G       WT     G     DATE     TME       ReLINQUISHED BY I AFFILIATION     DATE     TIME       Relinquished SampleR:     Part     Part       Signature     DATE     DATE			ŢW	U				_							_		_			
WT G     WT G     WT G       RELINQUISHED BY I AFFILATION     DATE     TIME       RELINQUISHED BY I AFFILATION     DATE     If which and			Ţ	U	_	-			-			K	_							
Received on Pare Time accerted BY AFFILATION DATE TIME ACCEPTED BY AFFILATION DATE ACCEPTED BY AFFILATION DATE TIME ACCEPTED BY AFFI			WT	U	_	>	200							_		1				TIONS
VH/123     123C     VH/123     123C       V/1/23     123C     VH/123     123C       North     North     North       Sampler     North     North       Fint name of SampleR:     Date Signed     N/1/123       Signature     Date Signed     N/1/123		ADDITIONAL COMMENTS	REL	NQUISHED	BY / AFFIL	ATION	in in		IME	-	AULERI	EU BT / F		2			ij.			
Multiplication     Multiplication       AMPLER NAME AND SIGNATURE     AMPLER NAME AND SIGNATURE       AMPLER NAME AND SIGNATURE     AMPLER       SIGNATURE of SAMPLER:     Ante Signad       Ituit     Ante Signad       Ituit     Ante Signad			Mont	non	5		V4/	~	230	Ĵ	5	lar	j.		0/1/1	7	2			
Temp in °C			(j	6	la	2		M	135	B	Vara	The second	6		1/2/1	3035			入	7
Temp in °C																				
Ared Brews Temp in Received //4/22			-		SAM	IPLER NAM	AE AND SIG	NATURE		1988	Tranks.	1. 2. 1.	100	1.20			0.		raloc	nlact
Eor SAMPLER: And None DATE Signed 1/4/2>						PRINT	Name of SA	MPLER:	Ŕ	100	Brow						ui dm		ooleu: O bel (N/Y)	(N/Y)   səlq
The second						SIGNA	VTURE of SA.	MPLER:	Allen	12	Burg		DATE Sig (MM/DD/)	Sined C):	14/23		θŢ		562	

F-ALL-Q-020rev.08, 12-Oct-2007

"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 involces not paid within 30 days.

6



#### MEMORANDUM

Project No. 153140604.0003

DATE January 18, 2023

TO Project File WSP USA Inc.

- **CC** Amanda Derhake, Jeff Ingram
- FROM Rahel Pommerenke

EMAIL rahel.pommerenke@wsp.com

## DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPC – VERIFICATION SAMPLING - DATA PACKAGE 60419220

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

None.

#### **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Company Name: WSP USA Inc.	Project Manager: _J. Ingram
Project Name: Ameren SEC - SCPC VS	Project Number: <u>153140604.0003</u>
Reviewer: R.Pommerenke	Validation Date: 1/18/2023
Laboratory: <u>Pace Analytical Services</u> Analytical Method (type and no.): <u>SM2540C (TDS); EPA 300.0 (Anions)</u> Matrix: Air Soil/Sed. Water Waste Sample Names <u>S-DG-2, S-DG-3, S-UG-1A, S-SCPC-FB-1, S-SCPC-DUP-1</u>	SDG #: <u>60419220</u>

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

Field Ir	nformation	YES	NO	NA	COMMENTS
a)	Sampling dates noted?	x			1/3/2023 - 1/4/2023
b)	Sampling team indicated?	х			JAB/PCS
c)	Sample location noted?	х			
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, Sp.Cond, ORP, Temp, DO, Turb
h)	Field Calibration within control limits?	x			
i)	Notations of unacceptable field conditions/performa	nces fro	m field lo	gs or field not	tes?
			×		
j)	Does the laboratory narrative indicate deficiencies?			×	
	Note Deficiencies:				
Chain-	of-Custody (COC)	YES	NO	NA	COMMENTS
		-	_	_	COMMENTS
<b>Chain-</b> a)	Was the COC properly completed?	YES ×	NO	NA	COMMENTS
	Was the COC properly completed? Was the COC signed by both field	X	_		COMMENTS
a) b)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	X			COMMENTS
a)	Was the COC properly completed? Was the COC signed by both field	X	_		COMMENTS
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	X			COMMENTS
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	× × ×			
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × ×			
a) b) c) Genera	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × ×	□ □ NO		
a) b) c) Genera a)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment?	× × × YES	□ □ NO		
a) b) c) Genera a) b <del>)</del>	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis?	× × ¥ YES	□ □ NO		
a) b) c) <b>Genera</b> a) b <del>)</del> c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used?	× × YES × ×	□ □ NO		
a) b) c) <b>Genera</b> a) b <del>)</del> c) d)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used? Was the correct method used?	× × × × ¥ ES	□ □ ■ ■ ■		

#### **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Blanks	5	YES	NO	NA	COMMENTS		
a)	Were analytes detected in the method blank(s)?		×				
b)	Were analytes detected in the field blank(s)?		x		S-SCPA-FB-1 @ S-DG-3		
<del>c)</del>	Were analytes detected in the equipment blank(s)?			х			
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?	х					
b)	Were the proper analytes included in the LCS?	х					
c)	Was the LCS accuracy criteria met?	Х					
Duplic	ates	YES	NO	NA	COMMENTS		
a)	a) Were field duplicates collected (note original and duplicate sample names)?						
		х			S-SCPC-DUP-1 @ S-UG-1A		
b)	Were field dup. precision criteria met (note RPD)?	х			Max RPD (2.6%) < 20%		
c)	c) Were lab duplicates analyzed (note original and duplicate samples)?						
		х					
d)	Were lab dup. precision criteria met (note RPD)?	Х			Max RPD (5%) < 15%		
Blind Standards		YES	NO	NA	COMMENTS		
a)	Was a blind standard used (indicate name,			х			
	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?		×		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?	Х					

#### Comments/Notes:

3281890/3281891: MS/MSD % recovery low for Fluoride. Performed on unrelated sample: no qualification necessa

#### **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

#### Data Qualification:

$ \left[ \right] $	Sample Name	Constituent(s)	Result	Qualifier	Reason
	$\mathbf{N}$				
	$\overline{\}$				
		$\mathbf{X}$			
_					
_					
_					
					<u>\</u>

Signature: \_\_\_\_\_ Rahul Rahul -

Date: 1/18/2023



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

June 21, 2023

Mark Haddock Rocksmith Geoengineering, LLC. 5233 Roanoke Drive Saint Charles, MO 63304

RE: Project: AMEREN SCPC Pace Project No.: 60428021

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between May 03, 2023 and May 05, 2023. 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,

fami Church

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC. Grant Morey, Rocksmith Geoengineering, LLC.





### CERTIFICATIONS

Project: AMEREN SCPC Pace Project No.: 60428021

### 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 #: T104704407-22-16 Utah Certification #: KS000212022-12 Illinois Certification #: 004592 Kansas Field Laboratory Accreditation: # E-92587 Missouri SEKS Micro Certification: 10070



### SAMPLE SUMMARY

Project: AMEREN SCPC Pace Project No.: 60428021

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60428021001	S-UG-1A	Water	05/03/23 13:53	05/05/23 05:10
60428021002	S-UG-2	Water	05/03/23 14:58	05/05/23 05:10
60428021003	S-DG-1	Water	05/03/23 11:14	05/05/23 05:10
60428021004	S-DG-2	Water	05/03/23 10:16	05/05/23 05:10
60428021005	S-DG-3	Water	05/03/23 09:20	05/05/23 05:10
60428021006	S-DG-4	Water	05/03/23 12:26	05/05/23 05:10
60428021007	S-SCPC-DUP-1	Water	05/03/23 08:00	05/05/23 05:10
60428021008	S-SCPC-FB-1	Water	05/03/23 12:36	05/05/23 05:10
60427703001	S-BMW-1S	Water	05/02/23 09:51	05/03/23 05:05
60427703002	S-BMW-3S	Water	05/02/23 11:32	05/03/23 05:05



### SAMPLE ANALYTE COUNT

Project: AMEREN SCPC Pace Project No.: 60428021

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60428021001	S-UG-1A	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021002	S-UG-2	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021003	S-DG-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021004	S-DG-2	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021005	S-DG-3	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021006	S-DG-4	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021007	S-SCPC-DUP-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60428021008	S-SCPC-FB-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60427703001	S-BMW-1S	EPA 200.7	JXD	7	PASI-K
		SM 2320B	JS2	1	PASI-K
		SM 2540C	CRN2	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
	S-BMW-3S	EPA 200.7	JXD		PASI-K



PASI-K PASI-K PASI-K PASI-K

### SAMPLE ANALYTE COUNT

	Lab ID	Sample ID	Method	Analysts	Analytes Reported
-	Pace Project No.:	60428021			Anglyége
	,				
	Project:	AMEREN SCPC			

SM 2320B	JS2	1	F
SM 2540C	CRN2	1	F
EPA 300.0	CRN2	3	F

PASI-K = Pace Analytical Services - Kansas City



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-UG-1A	Lab ID:	60428021001	Collected	: 05/03/23	3 13:53	Received: 05/	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 vtical Services	•		iod: EP/	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	89.9J 138000 <9.1 32300 292 9060	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:14 05/15/23 10:14 05/15/23 10:14 05/15/23 10:14 05/15/23 10:14 05/15/23 10:14	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity		ug/L Method: SM 23 ytical Services		115 y	1	05/11/23 11:53	05/15/23 10:14	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids		mg/L Method: SM 25 ytical Services		10.5 y	1		05/09/23 10:02		
Total Dissolved Solids 300.0 IC Anions 28 Days	,	mg/L Method: EPA 3 ytical Services		10.0 y	1		05/10/23 09:23		
Chloride Fluoride Sulfate	79.9 <0.12 49.4	mg/L mg/L mg/L	10.0 0.20 10.0	5.3 0.12 5.5	10 1 10		05/12/23 08:30 05/12/23 08:17 05/12/23 08:30	16984-48-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-UG-2	Lab ID:	60428021002	Collected	d: 05/03/2	3 14:58	Received: 05/	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 vtical Services			nod: EP/	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	458 115000 <9.1 23200 35.3 4180	ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:16 05/15/23 10:16 05/15/23 10:16 05/15/23 10:16 05/15/23 10:16 05/15/23 10:16	7440-70-2 7439-89-6 7439-95-4 7439-96-5	
Sodium	26000	ug/L ug/L	500 500	69.7 115	1	05/11/23 11:53	05/15/23 10:16		
2320B Alkalinity Alkalinity, Total as CaCO3		Method: SM 23 ytical Services mg/L		ity 10.5	1		05/09/23 10:09		
2540C Total Dissolved Solids		Method: SM 25 ytical Services		ty					
Total Dissolved Solids	496	mg/L	10.0	10.0	1		05/10/23 09:23		D6
300.0 IC Anions 28 Days		Method: EPA 3 ytical Services		ty					
Chloride Fluoride Sulfate	37.2 <0.12 51.8	mg/L mg/L mg/L	10.0 0.20 10.0	5.3 0.12 5.5	10 1 10		05/12/23 08:57 05/12/23 08:44 05/12/23 08:57		



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-DG-1	Lab ID:	60428021003	Collecte	d: 05/03/23	3 11:14	Received: 05	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 vtical Services	•		nod: EP	A 200.7			
Denne		,		,		05/44/00 44 50	05/45/00 40 40	7440 40 0	
Boron	96.9J	ug/L	100	6.4	1	05/11/23 11:53	05/15/23 10:18		
Calcium	129000	ug/L	200	26.9	1	05/11/23 11:53	05/15/23 10:18		
Iron	296	ug/L	50.0	9.1	1	05/11/23 11:53	05/15/23 10:18		
Magnesium	31000	ug/L	50.0	20.1	1	05/11/23 11:53	05/15/23 10:18		
Manganese	44.3	ug/L	5.0	0.39	1	05/11/23 11:53	05/15/23 10:18		
Potassium	3770	ug/L	500	69.7	1	05/11/23 11:53	05/15/23 10:18		
Sodium	4110	ug/L	500	115	1	05/11/23 11:53	05/15/23 10:18	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	20B						
-	Pace Anal	ytical Services	- Kansas C	ity					
Alkalinity, Total as CaCO3	450	mg/L	20.0	10.5	1		05/09/23 10:15		
2540C Total Dissolved Solids	Analvtical	Method: SM 25	40C						
	Pace Anal	ytical Services	- Kansas C	ity					
Total Dissolved Solids	499	mg/L	10.0	10.0	1		05/10/23 09:23		
300.0 IC Anions 28 Days	Analvtical	Method: EPA 3	00.0						
·····,·	,	ytical Services		ity					
Chloride	3.6	mg/L	1.0	0.53	1		05/12/23 09:10	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/12/23 09:10	16984-48-8	
Sulfate	29.5	mg/L	10.0	5.5	10		05/12/23 09:24	14808-79-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-DG-2	Lab ID:	60428021004	Collected	1: 05/03/23	3 10:16	Received: 05/	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 ytical Services	•		iod: EP/	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	75.5J 126000 156 25600 216 6360	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:20 05/15/23 10:20 05/15/23 10:20 05/15/23 10:20 05/15/23 10:20 05/15/23 10:20	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity		ug/L Method: SM 23 ytical Services		115 ty	1	05/11/23 11:53	05/15/23 10:20	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 ytical Services		10.5 ty	1		05/09/23 10:35		
Total Dissolved Solids 300.0 IC Anions 28 Days		mg/L Method: EPA 3 ytical Services		10.0 ty	1		05/10/23 09:24		
Chloride Fluoride Sulfate	2.8 <0.12 28.4	mg/L mg/L mg/L	1.0 0.20 10.0	0.53 0.12 5.5	1 1 10		05/12/23 09:37 05/12/23 09:37 05/12/23 09:50	16887-00-6 16984-48-8 14808-79-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-DG-3	Lab ID:	60428021005	Collected	: 05/03/23	3 09:20	Received: 05/	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 ytical Services	•		iod: EP/	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	83.6J 159000 238 35600 526 5630	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 5.0	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:22 05/15/23 10:22 05/15/23 10:22 05/15/23 10:22 05/15/23 10:22 05/15/23 10:22	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity	,	ug/L Method: SM 23 ytical Services		115 y	1	05/11/23 11:53	05/15/23 10:22	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 ytical Services		10.5 y	1		05/09/23 10:42		
Total Dissolved Solids 300.0 IC Anions 28 Days		mg/L Method: EPA 3 ytical Services		10.0 y	1		05/10/23 09:24		
Chloride Fluoride Sulfate	6.9 <0.12 76.3	mg/L mg/L mg/L	1.0 0.20 10.0	0.53 0.12 5.5	1 1 10		05/12/23 10:04 05/12/23 10:04 05/12/23 11:24	16887-00-6 16984-48-8 14808-79-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-DG-4	Lab ID:	60428021006	Collected	: 05/03/23	3 12:26	Received: 05	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 ytical Services	•		nod: EP	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	91.4J 139000 17.0J 43500 367 6640	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:35 05/15/23 10:35 05/15/23 10:35 05/15/23 10:35 05/15/23 10:35 05/15/23 10:35	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity		ug/L Method: SM 23 ytical Services		115 y	1	05/11/23 11:53	05/15/23 10:35	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 ytical Services		10.5 y	1		05/09/23 10:57		
Total Dissolved Solids 300.0 IC Anions 28 Days		mg/L Method: EPA 3 ytical Services		10.0 y	1		05/10/23 09:24		
Chloride Fluoride Sulfate	25.4 <0.12 56.9	mg/L mg/L mg/L	10.0 0.20 10.0	5.3 0.12 5.5	10 1 10		05/12/23 12:31 05/12/23 12:18 05/12/23 12:31	16887-00-6 16984-48-8 14808-79-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-SCPC-DUP-1	Lab ID:	60428021007	Collecte	d: 05/03/23	3 08:00	Received: 05	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	aration Meth	nod: EP	PA 200.7			
	Pace Anal	ytical Services	- Kansas C	ity					
Boron	93.7J	ug/L	100	6.4	1	05/11/23 11:53	05/15/23 10:37	7440-42-8	
Calcium	129000	ug/L	200	26.9	1	05/11/23 11:53	05/15/23 10:37	7440-70-2	
Iron	322	ug/L	50.0	9.1	1	05/11/23 11:53	05/15/23 10:37	7439-89-6	
Magnesium	31300	ug/L	50.0	20.1	1	05/11/23 11:53	05/15/23 10:37	7439-95-4	
Manganese	45.8	ug/L	5.0	0.39	1	05/11/23 11:53	05/15/23 10:37	7439-96-5	
Potassium	3790	ug/L	500	69.7	1	05/11/23 11:53	05/15/23 10:37	7440-09-7	
Sodium	4130	ug/L	500	115	1	05/11/23 11:53	05/15/23 10:37	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	320B						
	Pace Anal	ytical Services	- Kansas C	ity					
Alkalinity, Total as CaCO3	445	mg/L	20.0	10.5	1		05/09/23 11:05		
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C						
	Pace Anal	ytical Services	- Kansas C	ity					
Total Dissolved Solids	494	mg/L	10.0	10.0	1		05/10/23 09:25		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0						
-	Pace Anal	ytical Services	- Kansas C	ity					
Chloride	3.5	mg/L	1.0	0.53	1		05/12/23 12:44	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/12/23 12:44	16984-48-8	
Sulfate	29.0	mg/L	10.0	5.5	10		05/12/23 12:58	14808-79-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-SCPC-FB-1	Lab ID:	60428021008	Collecte	d: 05/03/23	3 12:36	Received: 05/	/05/23 05:10 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 ytical Services	•		od: EP	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	<6.4 30.2J <9.1 <20.1 <0.39 <69.7	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 5.0	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53 05/11/23 11:53	05/15/23 10:39 05/15/23 10:39 05/15/23 10:39 05/15/23 10:39	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity		ug/L Method: SM 23 ytical Services		115 ity	1	05/11/23 11:53	05/15/23 10:39	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 ytical Services		10.5 ity	1		05/09/23 11:13		
Total Dissolved Solids 300.0 IC Anions 28 Days	,	mg/L Method: EPA 3 ytical Services		5.0	1		05/10/23 09:25		
Chloride Fluoride Sulfate	0.55J <0.12 <0.55	mg/L mg/L mg/L	1.0 0.20 1.0	0.53 0.12 0.55	1 1 1		05/12/23 13:38 05/12/23 13:38 05/12/23 13:38	16984-48-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-BMW-1S	Lab ID:	60427703001	Collected	: 05/02/23	8 09:51	Received: 05/	03/23 05:05 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2 ytical Services	•		od: EP/	A 200.7			
Boron Calcium Iron Magnesium Manganese Potassium	64.8J 184000 <9.1 37100 849 427J	ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	05/04/23 12:37 05/04/23 12:37 05/04/23 12:37 05/04/23 12:37 05/04/23 12:37 05/04/23 12:37	05/23/23 09:21 05/23/23 09:21 05/23/23 09:21 05/23/23 09:21 05/23/23 09:21 05/23/23 09:21	7439-95-4 7439-96-5 7440-09-7	
Sodium 2320B Alkalinity	Pace Anal	ug/L Method: SM 23 ytical Services	- Kansas Cit	,	1	05/04/23 12:37	05/23/23 09:21	7440-23-5	
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 ytical Services		10.5 y	1		05/04/23 13:12		
Total Dissolved Solids 300.0 IC Anions 28 Days		mg/L Method: EPA 3 ytical Services		10.0 y	1		05/08/23 12:51		
Chloride Fluoride Sulfate	13.1 <0.12 37.7	mg/L mg/L mg/L	1.0 0.20 20.0	0.53 0.12 11.0	1 1 20		05/24/23 18:29 05/24/23 18:29 05/24/23 18:42	16984-48-8	



### Project: AMEREN SCPC

Pace Project No.: 60428021

Sample: S-BMW-3S	Lab ID:	60427703002	Collected	d: 05/02/23	3 11:32	Received: 05/	/03/23 05:05 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	ration Meth	od: EP	A 200.7			
	Pace Anal	ytical Services	- Kansas C	ity					
Boron	67.1J	ug/L	100	6.4	1	05/04/23 12:37	05/23/23 09:27	7440-42-8	
Calcium	137000	ug/L	200	26.9	1	05/04/23 12:37	05/23/23 09:27	7440-70-2	
Iron	<9.1	ug/L	50.0	9.1	1	05/04/23 12:37	05/23/23 09:27	7439-89-6	
Magnesium	24400	ug/L	50.0	20.1	1	05/04/23 12:37	05/23/23 09:27	7439-95-4	
Manganese	30.2	ug/L	5.0	0.39	1	05/04/23 12:37	05/23/23 09:27	7439-96-5	
Potassium	426J	ug/L	500	69.7	1	05/04/23 12:37	05/23/23 09:27	7440-09-7	
Sodium	5360	ug/L	500	115	1	05/04/23 12:37	05/23/23 09:27	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	20B						
	Pace Anal	ytical Services	- Kansas C	ity					
Alkalinity, Total as CaCO3	419	mg/L	20.0	10.5	1		05/04/23 13:20		
2540C Total Dissolved Solids	Analytical	Method: SM 25	40C						
	Pace Anal	ytical Services	- Kansas C	ity					
Total Dissolved Solids	495	mg/L	10.0	10.0	1		05/09/23 10:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0						
	Pace Anal	ytical Services	- Kansas C	ity					
Chloride	12.6	mg/L	1.0	0.53	1		05/24/23 18:54	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/24/23 18:54	16984-48-8	
Sulfate	32.4	mg/L	20.0	11.0	20		05/24/23 19:07	14808-79-8	



Project:	AMEREN SCPC					
Pace Project No.:	60428021					
QC Batch:	845219	Analysis Met	hod:	EPA 200.7		
QC Batch Method:	EPA 200.7	Analysis Des	cription:	200.7 Metals, Total		
		Laboratory:		Pace Analytical Se	rvices - Kansas City	,
Associated Lab Sam	ples: 60427703001, 60427703002					
METHOD BLANK:	3349216	Matrix:	Water			
Associated Lab Sam	ples: 60427703001, 60427703002					
		Blank	Reporting			
Param	eter Units	Result	Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	1(	6.4	05/23/23 09:16	
Calcium	ug/L	28.7J	20	00 26.9	05/23/23 09:16	
Iron	ug/L	9.3J	50	.0 9.1	05/23/23 09:16	
Magnesium	ug/L	<20.1	50	.0 20.1	05/23/23 09:16	
Manganese	ug/L	1.1J	5	.0 0.39	05/23/23 09:16	
Potassium	ug/L	<69.7	50	69.7	05/23/23 09:16	
Sodium	ug/L	<115	50	00 115	05/23/23 09:16	

### LABORATORY CONTROL SAMPLE: 3349217

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	994	99	85-115	
Calcium	ug/L	10000	10500	105	85-115	
Iron	ug/L	10000	10500	105	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	10200	102	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SP	PIKE DUPI	LICATE: 3349	218 MS	MSD	3349219							
		60427703001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Boron	ug/L		1000	1000	1050	1050	98	98	70-130	0	20	
Calcium	ug/L	184000	10000	10000	191000	195000	73	109	70-130	2	20	
Iron	ug/L	<9.1	10000	10000	10400	10400	104	104	70-130	0	20	
Magnesium	ug/L	37100	10000	10000	47000	47300	99	102	70-130	1	20	
Manganese	ug/L	849	1000	1000	1860	1890	102	104	70-130	1	20	
Potassium	ug/L	427J	10000	10000	10900	10800	104	104	70-130	0	20	
Sodium	ug/L	5130	10000	10000	15600	15700	104	106	70-130	1	20	
MATRIX SPIKE SAMPLE:		3349220										
			60427	703007	Spike	MS		MS	% Rec			
Parameter		Units	Re	esult	Conc.	Result	%	Rec	Limits		Qualif	iers
Boron		ug/L		101	1000	10	)70	97	70	-130		
Calcium		ug/L		132000	10000	1390	000	75	70	-130		

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Project: AMEREN SCPC Pace Project No.: 60428021

MATRIX SPIKE SAMPLE:	3349220						
_		60427703007	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Iron	ug/L	143	10000	10200	100	70-130	
Magnesium	ug/L	28500	10000	37900	94	70-130	
Manganese	ug/L	216	1000	1200	99	70-130	
Potassium	ug/L	2250	10000	12500	102	70-130	
Sodium	ug/L	5580	10000	15800	102	70-130	

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Project:	AMER	EN SCPC											
Pace Project No.:	60428	021											
QC Batch:	8466	:22		Analy	/sis Metho	d. E	EPA 200.7						
QC Batch Method:		200.7			/sis Metric		200.7 Metal	s Total					
QC Datch Method.		200.7			ratory:			,	ices - Kansas	City			
Associated Lab Sa	mples:	604280210 604280210	001, 6042802100 008				,			-	,		
METHOD BLANK:	33544	95			Matrix: W	/ater							
Associated Lab Sar	mples:	604280210 604280210	001, 6042802100 008	2, 6042802	21003, 604	28021004, 6	604280210	05, 60428	3021006, 604	128021007	,		
				Blai	nk	Reporting							
Parar	meter		Units	Res	ult	Limit	MDI	_	Analyzed	Qu	alifiers		
Boron			ug/L		<6.4	100	 D	6.4	05/15/23 10:	10			
Calcium			ug/L		<26.9	200	0		05/15/23 10:				
Iron			ug/L		<9.1	50.0	0		05/15/23 10:1				
Magnesium			ug/L		<20.1	50.0			05/15/23 10:				
Manganese			ug/L		<0.39	5.0			05/15/23 10:				
Potassium			ug/L		<69.7	500			05/15/23 10:				
Sodium			ug/L		<115	500	J	115	05/15/23 10: <sup>,</sup>	10			
LABORATORY CO	NTROL	SAMPLE:	3354496	Spike	LC	.s	LCS	%	Rec				
Para	meter		Units	Conc.		sult	% Rec			Qualifiers			
Boron			ug/L	100	00	965	97	7	85-115		_		
Calcium			ug/L	1000	00	10200	102	2	85-115				
Iron			ug/L	1000	00	10100	10 <sup>-</sup>	1	85-115				
Magnesium			ug/L	1000		10000	100		85-115				
Manganese			ug/L	100	0	962	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		05 115				
			-				96		85-115				
Potassium			ug/L	1000	00	9870	99	Э	85-115				
Potassium Sodium			-		00			Э					
	MATRIX	SPIKE DUPI	ug/L ug/L	1000 1000	00	9870	99 107	Э	85-115				
Sodium	MATRIX	SPIKE DUPI	ug/L ug/L	1000 1000	00	9870 10100	99 107	Э	85-115				
Sodium	MATRIX	SPIKE DUPI	ug/L ug/L	1000 1000 497	00	9870 10100	99 107	Э	85-115	% Rec		Max	
Sodium		SPIKE DUPI	ug/L ug/L LICATE: 3354	1000 1000 497 MS	00 00 MSD	9870 10100 3354498	99 10	9 1	85-115 85-115	% Rec Limits	RPD	Max RPD	Qual
Sodium MATRIX SPIKE & M Paramete			ug/L ug/L LICATE: 3354 60428021005 Result 83.6J	1000 1000 497 MS Spike Conc. 1000	MSD Spike	9870 10100 3354498 MS	99 10 MSD Result 1060	9 1 MS	85-115 85-115 MSD % Rec	Limits 70-130	RPD 1	RPD 20	Qual
Sodium MATRIX SPIKE & M Paramete Boron Calcium		Units ug/L ug/L	ug/L ug/L LICATE: 3354 60428021005 Result 83.6J 159000	1000 1000 497 MS Spike Conc. 1000 10000	00 00 MSD Spike Conc. 1000 10000	9870 10100 3354498 MS Result 1050 171000	99 10 MSD Result 1060 170000	9 1 MS % Rec 9 11	85-115 85-115 MSD % Rec 7 98 1 102	Limits 70-130 70-130	1 1	RPD 20 20	Qual
Sodium MATRIX SPIKE & M Paramete Boron Calcium Iron		Units ug/L ug/L ug/L	ug/L ug/L LICATE: 3354 60428021005 Result 83.6J 159000 238	1000 1000 497 MS Spike Conc. 1000 10000 10000	00 00 MSD Spike Conc. 1000 10000 10000	9870 10100 3354498 MS Result 1050 171000 10200	99 10 MSD Result 1060 170000 10200	9 1 % Rec 9 11 10	85-115 85-115 MSD <u>% Rec</u> 7 98 1 102 0 99	Limits 70-130 70-130 70-130	1 1 0	RPD 20 20 20	Qual
Sodium MATRIX SPIKE & M Paramete Boron Calcium Iron Magnesium		Units ug/L ug/L ug/L ug/L	ug/L ug/L LICATE: 3354 60428021005 Result 83.6J 159000 238 35600	1000 1000 497 MS Spike Conc. 1000 10000 10000 10000	00 00 MSD Spike Conc. 1000 10000 10000 10000	9870 10100 3354498 MS Result 1050 171000 10200 46100	99 10 MSD Result 1060 170000 10200 45700	9 1 % Rec 9 11 10 10	85-115 85-115 MSD % Rec 7 98 1 102 0 99 5 101	Limits 70-130 70-130 70-130 70-130	1 1 0 1	RPD 20 20 20 20 20	Qual
Sodium MATRIX SPIKE & M Paramete Boron Calcium Iron Magnesium Maganese		Units ug/L ug/L ug/L ug/L ug/L	ug/L ug/L LICATE: 3354 60428021005 Result 83.6J 159000 238 35600 526	1000 1000 497 MS Spike Conc. 1000 10000 10000 10000 10000	00 00 MSD Spike Conc. 10000 10000 10000 10000	9870 10100 3354498 MS Result 1050 171000 10200 46100 1500	99 10 MSD Result 1060 170000 10200 45700 1480	9 1 % Rec 9 11 10 10 9 9	85-115 85-115 MSD % Rec 7 98 1 102 0 99 5 101 7 95	Limits 70-130 70-130 70-130 70-130 70-130	1 1 0 1 1	RPD 20 20 20 20 20 20	Qual
Sodium MATRIX SPIKE & M Paramete Boron Calcium		Units ug/L ug/L ug/L ug/L	ug/L ug/L LICATE: 3354 60428021005 Result 83.6J 159000 238 35600	1000 1000 497 MS Spike Conc. 1000 10000 10000 10000	00 00 MSD Spike Conc. 1000 10000 10000 10000	9870 10100 3354498 MS Result 1050 171000 10200 46100	99 10 MSD Result 1060 170000 10200 45700	9 1 % Rec 9 11 10 10	MSD % Rec 7 98 1 102 0 99 5 101 7 95 1 102	Limits 70-130 70-130 70-130 70-130	1 1 0 1	RPD 20 20 20 20 20 20 20	Qual

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Project: A	MEREN SCPC								
Pace Project No.: 6	0428021								
QC Batch:	845171		Analysis Me	ethod:	SM 2320B				
QC Batch Method:	SM 2320B		Analysis Description:		2320B Alkalir	nity			
			Laboratory:		Pace Analytical Services - Kansas City				
Associated Lab Samp	les: 60427703	8001, 60427703002							
METHOD BLANK: 3	349039		Matrix	: Water					
Associated Lab Samp	les: 60427703	8001, 60427703002							
			Blank	Reporting					
Parame	ter	Units	Result	Limit	MDL		Analyze	d	Qualifiers
Alkalinity, Total as Ca	03	mg/L	<10.5	20	0.0	10.5 0	5/04/23 1 <sup>·</sup>	1:49	
LABORATORY CONT	ROL SAMPLE:	3349040							
			Spike	LCS	LCS	% R			
Parame	ter	Units	Conc.	Result	% Rec	Limi	its	Qualif	iers
Alkalinity, Total as Ca	03	mg/L	500	503	101	1	90-110		
SAMPLE DUPLICATE	: 3349041								
-			60427704003	Dup			Max		
Parame		Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as CaC	03	mg/L	198	19	95	2		10	
SAMPLE DUPLICATE	: 3349299								
D	1	11-16-	60427707001	Dup	000		Max		
Parame		Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as CaC	003	mg/L	160	10	63	2		10	

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Project:	AMER	EN SCPC								
Pace Project No.:	60428	021								
QC Batch:	8460	49		Analysis Me	ethod:	SM 2320B				
QC Batch Method:	SM 2	320B		Analysis De	escription:	2320B Alka	inity			
				Laboratory		Pace Analy	ical Se	rvices - Kar	nsas C	ity
Associated Lab Sar	mples:	60428021 60428021	001, 6042802100 008	2, 60428021003,	60428021004	4, 604280210	05, 604	28021006,	60428	021007,
METHOD BLANK:	33523	93		Matrix	: Water					
Associated Lab Sar	mples:	60428021 60428021	001, 6042802100 008	2, 60428021003,	60428021004	4, 604280210	05, 604	28021006,	60428	021007,
				Blank	Reporting	9				
Parar	neter		Units	Result	Limit	MD	L	Analyz	ed	Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	<10.5	5 2	0.0	10.5	05/09/23	09:16	
LABORATORY CO	NTROL	SAMPLE:	3352394							
				Spike	LCS	LCS		% Rec		
Parar	neter		Units	Conc	Result	% Rec		_imits	Qua	alifiers
Alkalinity, Total as C	CaCO3		mg/L	500	504	10	1	90-110		
SAMPLE DUPLICA	TE: 33	352395								
_				60428021005	Dup			Max		
Parar	neter		Units	Result	Result	RPI	)	RPD		Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	480	) 4	476	1		10	
SAMPLE DUPLICA	TE: 33	352396								
-				60428015002	Dup			Max		
Parar	neter		Units	Result	Result	RP[	)	RPD		Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	451	4	454	1		10	

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Project: AMEREN SCF	PC						
Pace Project No.: 60428021							
QC Batch: 845831		Analysis M	lethod:	SM 2540C			
QC Batch Method: SM 2540C		Analysis D	escription:	2540C Total E	Dissolved S	Solids	
		Laboratory	·:	Pace Analytic	al Services	s - Kansas C	lity
Associated Lab Samples: 60427	703001						
METHOD BLANK: 3351717		Matri	x: Water				
Associated Lab Samples: 60427	703001						
_		Blank	Reporting				
Parameter	Units	Result	Limit	MDL		Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.	0	5.0	5.0 05/	08/23 12:49	
LABORATORY CONTROL SAMPL	E: 3351718						
_		Spike	LCS	LCS	% Red		
Parameter	Units	Conc	Result	% Rec	Limits	; Qu	alifiers
Total Dissolved Solids	mg/L	1000	1020	102	80	)-120	
SAMPLE DUPLICATE: 3351719			_				
Parameter	Units	60427607001 Result	Dup Result	RPD		Max RPD	Qualifiers
							Quaimers
Total Dissolved Solids	mg/L	354	U 34	170	2	10	
SAMPLE DUPLICATE: 3351720		60427705002	P Dup			Мах	
SAMPLE DUPLICATE: 3351720 Parameter	Units	60427705002 Result	2 Dup Result	RPD		Max RPD	Qualifiers

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.



Project: AMEREN SCPC										
Pace Project No.: 60428021										
QC Batch: 846023		Analysis M	lethod:	SM 2540C						
QC Batch Method: SM 2540C		Analysis D	escription:	2540C Total I	Dissolv	ved Solids				
		Laboratory	<b>/:</b>	Pace Analytic	Pace Analytical Services - Kansas City					
Associated Lab Samples: 604277030	002									
METHOD BLANK: 3352331		Matri	x: Water							
Associated Lab Samples: 604277030	002									
		Blank	Reporting							
Parameter	Units	Result	Limit	MDL		Analyz	zed	Qualifiers		
Total Dissolved Solids	mg/L	<5.	0	5.0	5.0	05/09/23	10:54			
LABORATORY CONTROL SAMPLE:	3352332									
_		Spike	LCS	LCS		Rec	-			
Parameter	Units	Conc	Result	% Rec	L	imits	Qua	lifiers		
Total Dissolved Solids	mg/L	1000	1030	103		80-120				
SAMPLE DUPLICATE: 3352333										
Denemeter	Linita	60427707001	- 1			Max		Qualifiana		
Parameter	Units	Result	Result	RPD		RPD		Qualifiers		
Total Dissolved Solids	mg/L	95	7 9	916	4		10			
SAMPLE DUPLICATE: 3352334		60427777001	Dup			Мах				
	Units		Dup Result	RPD		Max RPD		Qualifiers		

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.



Project: AMEREN SCPC								
Pace Project No.: 60428021								
QC Batch: 846260		Analysis M	lethod:	SM 2540C				
QC Batch Method: SM 2540C		Analysis D	escription:	2540C Total	Dissolv	ved Solids		
		Laboratory	<i>/</i> :	Pace Analyti	cal Ser	vices - Kar	nsas Ci	ty
Associated Lab Samples: 604280210	001							
METHOD BLANK: 3353152		Matr	x: Water					
Associated Lab Samples: 604280210	001							
		Blank	Reportin	0				
Parameter	Units	Result	Limit	MDL		Analyz	ed	Qualifiers
Total Dissolved Solids	mg/L	<5.	0	5.0	5.0	05/10/23	09:20	
LABORATORY CONTROL SAMPLE:	3353153							
		Spike	LCS	LCS		6 Rec		
Parameter	Units	Conc	Result	% Rec	L	imits	Qua	lifiers
Total Dissolved Solids	mg/L	1000	974	97	,	80-120		
SAMPLE DUPLICATE: 3353154								
Devenueter	L lucitor	60427854002	- 1	000		Max		Qualifiana
Parameter	Units	Result	Result	RPD		RPD		Qualifiers
Total Dissolved Solids	mg/L	274	0 2	870	5		10	
SAMPLE DUPLICATE: 3353156								
		60427860003				Max		
Parameter	Units	60427860002 Result	2 Dup Result	RPD		Max RPD		Qualifiers

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.



Project:	AMEREN SCPC						
Pace Project No.:	60428021						
QC Batch:	846264		Analysis M	ethod:	SM 2540C		
QC Batch Method:	SM 2540C		Analysis De	escription:	2540C Total D	Dissolved Solids	
			Laboratory	:	Pace Analytic	al Services - Ka	nsas City
Associated Lab San	nples: 60428021	002, 60428021003	, 60428021004,	6042802100	5, 60428021006	60428021007	, 60428021008
METHOD BLANK:	3353161		Matrix	k: Water			
Associated Lab San	nples: 60428021	002, 60428021003	, 60428021004,	6042802100	5, 60428021006	60428021007	, 60428021008
			Blank	Reporting	•		
Paran	neter	Units	Result	Limit	MDL	Analy:	zed Qualifiers
Total Dissolved Solid	ds	mg/L	<5.0	)	5.0	5.0 05/10/23	09:23
LABORATORY COM	NTROL SAMPLE:	3353162					
_			Spike	LCS	LCS	% Rec	
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solid	ds	mg/L	1000	1000	100	80-120	
SAMPLE DUPLICA	TE: 3353163						
5		11-26-	60428021005	Dup		Max	0
Paran		Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solid	ds	mg/L	640	) (	646	1	10 D6
SAMPLE DUPLICAT	FE: 3353164						
Dama		11-20-	60428144001	Dup		Max	0
Paran		Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solid	ds	mg/L	426	6 4	463	8	10

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



AMEREN SCPC

Project:

### **QUALITY CONTROL DATA**

QC Batch: 846	459		Analy	ysis Method	d: I	EPA 300.0						
QC Batch Method: EPA	300.0		Analy	ysis Descrip	otion:	300.0 IC An	ions					
			Labo	ratory:	F	Pace Analyt	ical Servi	ces - Kansa	s City			
Associated Lab Samples:	6042802100 6042802100	01, 6042802100 08	02, 6042802	21003, 6042	28021004,	604280210	05, 60428	021006, 604	428021007	,		
METHOD BLANK: 33539	923			Matrix: Wa	ater							
Associated Lab Samples:	6042802100 6042802100	01, 6042802100 08		,	,	604280210	05, 60428	021006, 604	428021007	,		
Parameter		Units	Blar Res		Reporting Limit	MD	_	Analyzed	Qu	alifiers		
Chloride		mg/L		<0.53	1.	0	0.53 (	)5/11/23 18:	45			
Fluoride		mg/L		<0.12	0.2	0	0.12 (	05/11/23 18:	45			
Sulfate		mg/L		<0.55	1.	0	0.55 (	)5/11/23 18:	45			
LABORATORY CONTROL	SAMPLE: 3	3353924										
		20002-f	Spike	LC	S	LCS	% F	Rec				
Parameter		Units	Conc.	Res	ult	% Rec	Lin	nits (	Qualifiers			
Chloride		mg/L		5	4.8	9	5	90-110		_		
Fluoride		mg/L	2.	.5	2.4	9	6	90-110				
Sulfate		mg/L		5	4.9	98	3	90-110				
MATRIX SPIKE & MATRIX		ICATE: 3353	925		3353926							
MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 3353	925 MS	MSD	3353926	i						
MATRIX SPIKE & MATRIX		ICATE: 3353 60428015002		MSD Spike	3353926 MS	MSD	MS	MSD	% Rec		Max	
MATRIX SPIKE & MATRIX Parameter			MS				MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qua
Parameter		60428015002	MS Spike	Spike	MS	MSD		% Rec		RPD 1	RPD	Qua
Parameter	Units	60428015002 Result	MS Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec 104	Limits		RPD	Qua
Parameter Chloride Fluoride	Units mg/L	60428015002 Result 1.9	MS Spike Conc. 5	Spike Conc. 5	MS Result 7.1	MSD Result 7.0	% Rec 105	% Rec 104 114	Limits 80-120	1	RPD 15 15	Qual M1
Parameter Chloride Fluoride Sulfate	Units mg/L mg/L mg/L	60428015002 	MS Spike Conc. 5 2.5 50	Spike Conc. 5 2.5	MS Result 7.1 2.9	MSD Result 7.0 2.9 94.5	% Rec 105 116	% Rec 104 114	Limits 80-120 80-120	1 1	RPD 15 15	
Parameter Chloride Fluoride Sulfate	Units mg/L mg/L mg/L	60428015002 	MS Spike Conc. 5 2.5 50	Spike Conc. 5 2.5	MS Result 7.1 2.9 105	MSD Result 7.0 2.9 94.5	% Rec 105 116	% Rec 104 114	Limits 80-120 80-120	1 1	RPD 15 15	
Parameter Chloride Fluoride Sulfate	Units mg/L mg/L mg/L	60428015002 	MS Spike Conc. 5 2.5 50 928	Spike Conc. 5 2.5 50	MS Result 7.1 2.9 105	MSD Result 7.0 2.9 94.5	% Rec 105 116	% Rec 104 114	Limits 80-120 80-120	1 1	RPD 15 15	
Parameter Chloride Fluoride Sulfate	Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353	MS Spike Conc. 5 2.5 50 928 MS	Spike Conc. 5 2.5 50 MSD	MS Result 7.1 2.9 105 3353929	MSD Result 7.0 2.9 94.5	% Rec 105 116 130	% Rec 104 114 110	Limits 80-120 80-120 80-120	1 1	RPD 15 15 15	M1
Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX	Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003	MS Spike Conc. 5 2.5 50 928 MS Spike	Spike Conc. 5 2.5 50 MSD Spike	MS Result 7.1 2.9 105 3353929 MS	MSD Result 7.0 2.9 94.5 MSD	% Rec 105 116 130	% Rec 104 114 110 MSD % Rec	Limits 80-120 80-120 80-120 % Rec	1 1 10	RPD 15 15 15 15 Max RPD	
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride	Units mg/L mg/L mg/L ( SPIKE DUPL Units	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result	MS Spike Conc. 5 2.5 50 928 MS Spike Conc.	Spike Conc. 5 2.5 50 MSD Spike Conc.	MS Result 7.1 2.9 105 3353929 MS Result	MSD Result 7.0 2.9 94.5 MSD Result	% Rec 105 116 130 MS % Rec	% Rec           104           114           110           MSD           % Rec           114	Limits 80-120 80-120 80-120 % Rec Limits	1 1 10 RPD	RPD 15 15 15 15 Max RPD 15	M1
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride Fluoride	Units mg/L mg/L mg/L ( SPIKE DUPL Units mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5	Spike Conc. 5 2.5 50 MSD Spike Conc. 5	MS Result 7.1 2.9 105 3353929 MS Result 9.0	MSD Result 7.0 2.9 94.5 MSD Result 9.3	% Rec 105 116 130 MS % Rec 107	% Rec           104           114           110           MSD           % Rec           114           110	Limits 80-120 80-120 80-120 % Rec Limits 80-120	1 1 10 RPD 4	RPD 15 15 15 15 Max RPD 15	M1
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride Fluoride Sulfate	Units mg/L mg/L mg/L (SPIKE DUPL (SPIKE DUPL Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6 <0.12 40.9	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5 2.5 50	Spike Conc. 5 2.5 50 MSD Spike Conc. 5 2.5	MS Result 7.1 2.9 105 3353929 MS Result 9.0 2.7 95.7	MSD Result 7.0 2.9 94.5 MSD Result 9.3 2.9 95.2	% Rec 105 116 130 MS % Rec 107 109	% Rec           104           114           110           MSD           % Rec           114           110	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 10 RPD 4 7	RPD 15 15 15 15 Max RPD 15 15	M1
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter	Units mg/L mg/L mg/L (SPIKE DUPL (SPIKE DUPL Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6 <0.12 40.9	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5 2.5 50	Spike Conc. 5 2.5 50 MSD Spike Conc. 5 2.5	MS Result 7.1 2.9 105 3353929 MS Result 9.0 2.7	MSD Result 7.0 2.9 94.5 MSD Result 9.3 2.9 95.2	% Rec 105 116 130 MS % Rec 107 109	% Rec           104           114           110           MSD           % Rec           114           110	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 10 RPD 4 7	RPD 15 15 15 15 Max RPD 15 15	M1
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride Fluoride Sulfate	Units mg/L mg/L (SPIKE DUPL Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6 <0.12 40.9	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5 2.5 50 931	Spike Conc. 5 2.5 50 MSD Spike Conc. 5 2.5 50	MS Result 7.1 2.9 105 3353929 MS Result 9.0 2.7 95.7	MSD Result 7.0 2.9 94.5 MSD Result 9.3 2.9 95.2	% Rec 105 116 130 MS % Rec 107 109	% Rec           104           114           110           MSD           % Rec           114           110	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 10 RPD 4 7	RPD 15 15 15 15 Max RPD 15 15	M1
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride Fluoride Sulfate	Units mg/L mg/L (SPIKE DUPL Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6 <0.12 40.9 ICATE: 3353	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5 2.5 50 931 MS	Spike Conc. 5 2.5 50 MSD Spike Conc. 5 2.5 50 MSD	MS Result 7.1 2.9 105 3353929 MS Result 9.0 2.7 95.7 3353932	MSD Result 7.0 2.9 94.5 MSD Result 9.3 2.9 95.2	% Rec 105 116 130 MS % Rec 107 109 110	% Rec 5 104 6 114 110 MSD % Rec 7 114 116 109	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 10 RPD 4 7	RPD 15 15 15 15 Max RPD 15 15 15	M1 Qua
Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX	Units mg/L mg/L mg/L ( SPIKE DUPL Units mg/L mg/L mg/L	60428015002 Result 1.9 <0.12 39.7 ICATE: 3353 60428019003 Result 3.6 <0.12 40.9 ICATE: 3353 60428021005	MS Spike Conc. 5 2.5 50 928 MS Spike Conc. 5 2.5 50 931 MS Spike	Spike Conc. 5 2.5 50 MSD Spike Conc. 5 2.5 50 MSD Spike	MS Result 7.1 2.9 105 3353929 MS Result 9.0 2.7 95.7 3353932 MS	MSD Result 7.0 2.9 94.5 MSD Result 9.3 2.9 95.2	% Rec 105 116 130 MS % Rec 107 109 110 MS	% Rec 5 104 6 114 110 MSD % Rec 114 116 109 MSD % Rec	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120 80-120	1 10 RPD 4 7 1	RPD 15 15 15 15 Max RPD 15 15 15 15	M1

# **REPORT OF LABORATORY ANALYSIS**

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Project: AMEREN SCPC Pace Project No.: 60428021

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3353931 3353932 MS MSD 60428021005 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result % Rec RPD RPD Result Conc. Result % Rec Limits Qual Sulfate mg/L 76.3 50 50 128 129 103 106 80-120 1 15 SAMPLE DUPLICATE: 3353927 60428015002 Dup Max RPD RPD Parameter Result Qualifiers Units Result 1.9 Chloride 1.9 0 15 mg/L <0.12 Fluoride mg/L <0.12 15 39.7 2 Sulfate mg/L 39.0 15

### SAMPLE DUPLICATE: 3353930

		60428019003	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Chloride	mg/L	3.6	3.9	7	15	
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	40.9	41.9	2	15	

### SAMPLE DUPLICATE: 3353933

Parameter	Units	60428021005 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	6.9	6.9	1	15	
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	76.3	70.6	8	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.



Project: Pace Project No.:	AMERE 604280	N SCPC 21											
QC Batch:	84846	2		Analy	sis Metho	d: E	PA 300.0						
QC Batch Method:	EPA 3	00.0		Analy	/sis Descri	ption: 3	00.0 IC Anio	ons					
				Labo	ratory:	P	ace Analyti	cal Servic	es - Kansa	s City			
Associated Lab Sar	mples:	604277030	01, 60427703002		,		,			,			
METHOD BLANK:	336172	5			Matrix: W	ater							
Associated Lab Sar	mples:	604277030	01, 60427703002	2									
				Blar	nk	Reporting							
Parar	meter		Units	Res		Limit	MDL		Analyzed	Qu	alifiers		
Chloride			mg/L		<0.53	1.0		0.53 0	5/24/23 09:	:13			
Fluoride			mg/L		<0.12	0.20		0.12 0	5/24/23 09:	:13			
Sulfate			mg/L		<0.55	1.0		0.55 0	5/24/23 09:	:13			
LABORATORY CO	NTROL S		0004700										
			3361726										
			3361726	Spike	LC	S	LCS	% R	Rec				
Parar	meter		Units	Spike Conc.	LC Res		LCS % Rec	% R Lim		Qualifiers			
Parar				Conc.				Lim		Qualifiers	_		
			Units	Conc.		sult	% Rec	Lim	iits	Qualifiers	_		
Chloride			Units mg/L	Conc.		ult	% Rec 95	Lim	90-110	Qualifiers	_		
Chloride Fluoride	meter		Units mg/L mg/L mg/L	Conc. 2.	Res 5 5	4.8 2.5	% Rec 95 101	Lim	its 90-110 90-110	Qualifiers			
Chloride Fluoride Sulfate	meter		Units mg/L mg/L mg/L .ICATE: 33617	27 MS	Res 5 5 5 MSD	4.8 2.5 5.0 3361728	% Rec 95 101 101	Lim	iits 90-110 90-110 90-110 90-110		_		
Chloride Fluoride Sulfate MATRIX SPIKE & N	meter MATRIX S	PIKE DUPL	Units mg/L mg/L mg/L .ICATE: 33617 60428838004	27 MS Spike	Res 5 5 5 5 MSD Spike	sult 4.8 2.5 5.0 3361728 MS	% Rec 95 101 101 MSD	Lim	iits 90-110 90-110 90-110 90-110 MSD	% Rec	_	Max	
Chloride Fluoride Sulfate	meter MATRIX S		Units mg/L mg/L mg/L .ICATE: 33617	27 MS	Res 5 5 5 MSD	4.8 2.5 5.0 3361728	% Rec 95 101 101	Lim	iits 90-110 90-110 90-110 90-110		RPD	Max RPD	Qual
Chloride Fluoride Sulfate MATRIX SPIKE & N	meter MATRIX S	PIKE DUPL	Units mg/L mg/L mg/L .ICATE: 33617 60428838004	27 MS Spike	Res 5 5 5 5 MSD Spike	sult 4.8 2.5 5.0 3361728 MS	% Rec 95 101 101 MSD	Lim	MSD % Rec	% Rec Limits		RPD	Qual
Chloride Fluoride Sulfate MATRIX SPIKE & M Paramete	meter MATRIX S	SPIKE DUPI	Units mg/L mg/L JICATE: 33617 60428838004 Result	27 MS Spike Conc.	MSD Spike Conc.	4.8 2.5 5.0 3361728 MS Result	% Rec 95 101 101 MSD Result	MS % Rec	iits 90-110 90-110 90-110 90-110 90-110 <u>MSD</u> % Rec 91 101	% Rec Limits 80-120 80-120		RPD 15 15	Qual

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.



### QUALIFIERS

### Project: AMEREN SCPC

Pace Project No.: 60428021

### 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.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	AMEREN SCPC
Pace Project No .:	60428021

.ab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
0427703001	S-BMW-1S	EPA 200.7	845219	EPA 200.7	845416
0427703002	S-BMW-3S	EPA 200.7	845219	EPA 200.7	845416
0428021001	S-UG-1A	EPA 200.7	846622	EPA 200.7	846678
0428021002	S-UG-2	EPA 200.7	846622	EPA 200.7	846678
0428021003	S-DG-1	EPA 200.7	846622	EPA 200.7	846678
0428021004	S-DG-2	EPA 200.7	846622	EPA 200.7	846678
0428021005	S-DG-3	EPA 200.7	846622	EPA 200.7	846678
0428021006	S-DG-4	EPA 200.7	846622	EPA 200.7	846678
0428021007	S-SCPC-DUP-1	EPA 200.7	846622	EPA 200.7	846678
0428021008	S-SCPC-FB-1	EPA 200.7	846622	EPA 200.7	846678
0427703001	S-BMW-1S	SM 2320B	845171		
0427703002	S-BMW-3S	SM 2320B	845171		
0428021001	S-UG-1A	SM 2320B	846049		
0428021002	S-UG-2	SM 2320B	846049		
0428021003	S-DG-1	SM 2320B	846049		
0428021004	S-DG-2	SM 2320B	846049		
0428021005	S-DG-3	SM 2320B	846049		
0428021006	S-DG-4	SM 2320B	846049		
0428021007	S-SCPC-DUP-1	SM 2320B	846049		
0428021008	S-SCPC-FB-1	SM 2320B	846049		
0427703001	S-BMW-1S	SM 2540C	845831		
0427703002	S-BMW-3S	SM 2540C	846023		
0428021001	S-UG-1A	SM 2540C	846260		
0428021002	S-UG-2	SM 2540C	846264		
0428021003	S-DG-1	SM 2540C	846264		
0428021004	S-DG-2	SM 2540C	846264		
0428021005	S-DG-3	SM 2540C	846264		
0428021006	S-DG-4	SM 2540C	846264		
0428021007	S-SCPC-DUP-1	SM 2540C	846264		
0428021008	S-SCPC-FB-1	SM 2540C	846264		
0427703001	S-BMW-1S	EPA 300.0	848462		
0427703002	S-BMW-3S	EPA 300.0	848462		
0428021001	S-UG-1A	EPA 300.0	846459		
0428021002	S-UG-2	EPA 300.0	846459		
0428021003	S-DG-1	EPA 300.0	846459		
0428021004	S-DG-2	EPA 300.0	846459		
0428021005	S-DG-3	EPA 300.0	846459		
0428021006	S-DG-4	EPA 300.0	846459		
0428021007	S-SCPC-DUP-1	EPA 300.0	846459		
0428021008	S-SCPC-FB-1	EPA 300.0	846459		

	r			W0#:60428021
	Pace	DC#_Title: ENV-F	RM-LENE-0009_Sam	
	ANALYTICAL SERVICES	Revision: 2	Effective Date: 01/12/2	60428021
Client Nar	me: /	Rocksm11h		
Courier:	FedEx 🗆 UPS	U VIA U Clay D		Pace 🗆 Xroads 🗷 Client 🗆 Other 🗆
Tracking #:			Pace Shipping Label Use	ed?Yes 🎦 No 🗆
Custody Sea	al on Cooler/Box		Seals intact: Yes.	🛛 No 🗆
Packing Mate	5-	e Wrap 🗆 Bubble E	~	
Thermomete		······································	/pe of Ice: (Vet) Blue N	Data and initials of neurons of
Cooler Temp			Factor 40.2 Correc	cted 1.8/0.3/2.5 examining contents: 1/2.5/5
	hould be above free	Zing to 6°C		
Chain of Cust				
	tody relinquished:		₩Yes No ÜN/A	
Samples arriv	ed within holding	time:	- ¥Yes □No □N/A	
Short Hold Ti	ime analyses (<7	72hr):	□Yes <b>□</b> N/A	
Rush Turn A	round Time requ	lested:	□Yes ĦNo □N/A	
Sufficient volu	ime:		ØYes □No □N/A	
Correct contai	iners used:		₽Yes □No □N/A	
Pace containe	ers used:		XYes □No □N/A	
Containers inte	act:		∑Yes □No □N/A	
Unpreserved 5	5035A / TX1005/1	006 soils frozen in 48hrs	? 🛛 Yes 🗹 No 🗆 N/A	
Filtered volum	e received for dis	solved tests?	□Yes ↓No □N/A	
Sample labels	match COC: Dat	e / time / ID / analyses	₩Yes □No □N/A	
	ain multiple phase	~	□Yes <b>Gi</b> No □N/A	
		vation in compliance?		List sample IDs, volumes, lot #'s of preservative and the
No		lfide, NaOH>10 Cyanide)	LOT#: 67187	date/time added.
	DA, Micro, O&G, KS sample checks:	TPH, OK-DRO)	LOT#: 67187	
	strip turns dark? (F	• •	□Yes □No	
Potassium iodi	ide test strip turns	blue/purple? (Preserve)	Yes No	
Trip Blank pres	sent:		□Yes ¥No □N/A	
Headspace in <sup>v</sup>	VOA vials ( >6mn	n):	□Yes 📭No  □N/A	
Samples from I	USDA Regulated	Area: State:	Yes No N/A	
Additional labe	ls attached to 503	35A / TX1005 vials in the	field? 🗆 Yes 🖾 No 🗆 N/A	
	ation/ Resolution		COC to Client? Y / N	Field Data Required? Y / N
Person Contact	ted:	D	ate/Time:	
Comments/ Re	solution:			
				c
Project Manage	er Review:		Dat	e:
,			Dat	

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT, All relevant fields must be completed accurately.

1	WWW.pacelabs.com																ļ				
Section A Required C	themit Information:	Section B Required Project Information:	t Informatic	:uo				Section C Invoice Information:	C formation:									Page:	÷	of 1	
Company:	Rocksmith Geoengineers, LLC.	Report To: Mark Haddo	(Haddoc	ock				Attention:						_			l				]
Address:	5233 Roanoke Drive	Copy To: Jeffre	Jeffrey Ingrar	am				Company Name:	Name: F	Rocksmith				REGU	REGULATORY AGENCY	IY AGE	NCY				
	St. Charles, MO 63304							Address:						Ĺ	NPDES	Ū	ROUNE	GROUND WATER		DRINKING WATER	WATER
Email To:	dock@rocksmithgeo.com	Purchase Order No.:	.: oN					Pace Quote Reference:						د	UST	R(	RCRA		0	OTHER	
Phone:	Fax:	Project Name:	AMEREN SCPC	N SCPC				Pace Projec Manager:		Jamie Church				Site	Site Location	L			No.16	の語の	10 10 10 10 10 10 10 10 10 10 10 10 10 1
Request	Requested Due Date/TAT: Standard	Project Number: COC #10	COC #1	0				Pace Profile		15856, line 2				,	STATE:	l:	M	1			- 15 Pr-
											Н	Req	Requested Analysis Filtered (Y/N)	Analys	is Filte	IN) per	(N	101	No. A. O.	neter	Port and
	Section D Valid Matrix Codes Required Client Information COD	odes CODE	(awo		COLLECTED	ĒD			Prest	Preservatives	<b>1</b> N /λ	z z	z	z	z z	z					a state of
	DRINKING WATER WATER WASTE WATER PRODUCT SOIL/SOLID OIL	및 주 및 다 의 의 see valid codes	))=) 8A99=	COMPOSITE START	ш	COMPOSITE END/GRAB	оггестіои	S			t	e/Sulfate sleteM nA		** elet				(N/人) व			
	SAMPLE ID (A-Z. 0-9. , -) Sample IDS MUST BE UNIQUE	% SODE (	E TYPE (G:				TA GMBT :	ЯЗИІАТИС Бэ <mark>ч</mark> тэ:			ysis Tesi	le/Fluorid		9MI VI Xib Y	922 U	s/Ferric In s/Ferric In	0.05-	al Chlorine	Ś	604280	ã
z		KIATAM		DATE	TIME	DATE TIME		Unpres	FONH BOS <sup>7</sup> H	HCI Methan HCI HCI	Offer	Chlorid	Alkalini TDS		nuibeA nuibeA	Ferrous		ubisəЯ	Pace P	Pace Project No./ Lab I.D.	/ Lab I.D.
-	S-UG-1A	WT	ß		15.	5-3-33135	23	21				1	5								
2	S-UG-2	ΜT	U		1 5-	5-3-23 (45%	2	21	1			3	1								
3	S-DG-1	Μ	U		/ 5-	5-3-33 1114	H.	21	1			3	1								
4	S-DG-2	Μ	U		10	5-3-33 101	6	17	1			2	1	~	-						
5	S-DG-3	WT	U		5	0	8	 Cb				7	77	X							
9	S-DG-4	ΜT	U	-	5 S	-	336		-			3	1								
7	S-SCPC-DUP-1	WT	υ	-	21			 1				3	1	_							
80	S-SCPC-FB-1	WT	U	-	No.	5-3-33 1236	36	<u>cs</u>	•••	_		1,3	1								
σ	S-SCPC-MS-1	WT	U		N.	53-33 BALE	3	- で				2	25	~				ر.، ا	Caileckel@	5	-06-3
9	S-SCPC-MSD-1	ŢŴ	0		ic.	5-3-23 6920	2	-	-			2	5						collected	es c	-D6-3
£	S-BMW-1S	ΨT	e					_													
12	S-BMW-3S	τw	U	-	_					_											
	ADDITIONAL COMMENTS	RELI	NQUISHEL	D BY / AF	RELINQUISHED BY / AFFIJATION		DATE	TIME	_	ACCE	ACCEPTED BY / AFFILIATION	/ I AFFIL	IATION	_	рАте	TIME	ų		SAMPLE	SAMPLE CONDITIONS	NS
m III ddy.	App III and Cat/An Metale*+EPA 200.7; Bi, Ca; Fe, Mg, Mn; K, Na	Gran	Srant Moren	Nava	dsm1		EC-H-S	1600		R	R	3		1)	512	020	10	8	Y		
200 8 Meta	***App IV Metals - EPA 2007 7 - Ba, Be, Co, Pb, Li, Mo 2008 Metals - Sb, As, Cd, Cr, Se, Tl			-										*			-0	<u>م</u> ،ک			
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Radium 2	Radium 226/228 to Pace PA																				
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Page 31 of 31

×. 121



# Memorandum June 27, 2023

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 – S	CPC – Data Package 60428021

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 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).

# **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Company Name: Rocksmith Geoengineering	Project Manager: J. Ingram
Project Name: Ameren SCPC	Project Number: 23009
Reviewer: G. Morey	Validation Date: 6/27/2023
Laboratory: <u>Pace Analytical</u> Analytical Method (type and no.): <u>EPA 200.7 (Total Metals); SM 2</u> Matrix: Air Soil/Sed. Water Waste Sample Names <u>S-UG-1A, S-UG-2, S-DG-1, S-DG-2, S-DG-3, S-DG-4</u>	]

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

Field Ir	nformation	YES	NO	NA	COMMENTS
a)	Sampling dates noted?	х			5/2/2023 - 5/3/2023
b)	Sampling team indicated?	х			GTM
c)	Sample location noted?	×			
d)	Sample depth indicated (Soils)?			х	
e)	Sample type indicated (grab/composite)?	×			Grab
f)	Field QC noted?	×			See Notes
g)	Field parameters collected (note types)?	X			pH, Spec Cond, Turb, Temp, DO, ORP
h)	Field Calibration within control limits?	х			
i)	Notations of unacceptable field conditions/performa	nces fro	om field lo	gs or field no	tes?
			×		
j)	Does the laboratory narrative indicate deficiencies?			х	No lab narrative.
	Note Deficiencies:				
Chain-	of-Custody (COC)	YES	NO	NA	COMMENTS
<b>Chain-</b> a)	of-Custody (COC) Was the COC properly completed?	YES	NO	NA	COMMENTS
	Was the COC properly completed? Was the COC signed by both field	X	_		COMMENTS
a)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	×	_		COMMENTS
a)	Was the COC properly completed? Was the COC signed by both field	X	_		
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × ×			
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	×			
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × ×			
a) b) c) Genera	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × YES			
a) b) c) Genera a)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment?	× × YES	□ □ ■ ■		
a) b) c) Genera a) b)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis?	× × ¥ YES	□ □ ■ ■ ■		
a) b) c) <b>Genera</b> a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used?	× × YES × ×	□ □ ■ ■ ■		
a) b) c) <b>Genera</b> a) b) c) d)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used? Was the correct method used?	× × × ¥ ¥ × ×	□ □ ■ ■ ■ ■		

## **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Blanks		YES	NO	NA	COMMENTS		
a)	Were analytes detected in the method blank(s)?	х			See Notes		
b)	Were analytes detected in the field blank(s)?	x			See Notes		
c)	Were analytes detected in the equipment blank(s)?			Х			
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?	х					
c)	Was the LCS accuracy criteria met?	Х					
Duplic	ates	YES	NO	NA	COMMENTS		
a)	) Were field duplicates collected (note original and duplicate sample names)?						
		×			See Notes		
b)	Were field dup. precision criteria met (note RPD)?	X			See Notes		
c)	Were lab duplicates analyzed (note original and duplicate samples)?						
		х			See Notes		
d)	Were lab dup. precision criteria met (note RPD)?	X					
Blind S	Standards	YES	NO	NA	COMMENTS		
a)	Was a blind standard used (indicate name,			Х			
	analytes included and concentrations)?						
b)	Was the %D within control limits?			х			
Motrix	Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS		
		_	-	_	See Notes		
a)	Was MS accuracy criteria met?		x				
	Recovery could not be calculated since sample contained high concentration of analyte?			х			
b)	Was MSD accuracy criteria met?	х					
	Recovery could not be calculated since sample contained high concentration of analyte?			x			
c)	Were MS/MSD precision criteria met?	X					

### Comments/Notes:

General:					
Chloride and/or Sulfate were diluted in some samples; no qualification necessary.					

### Method Blanks:

3349216: Calcium (28.7J), Iron (9.3J), and Manganese (1.1J). Associated with samples -001 and -002.

Calcium and Manganese results > RL and 10x blank, no qualification necessary. Iron results non-detect, no qualification.

### **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

### Comments/Notes:

Field Blanks:

S-SCPC-FB-1 @ S-DG-4: Calcium (30.2J) and Chloride (0.55J). Results > RL and 10x blank, no qualification necessary.

Duplicates:

S-SCPC-DUP-1 @ S-DG-1: all RPD's within control limits (20%).

Lab duplicate Max RPD: 10%: Alkalinity, TDS; 15%: Chloride, Fluoride, Sulfate

MS/MSD:

3353925/3353926: MS recovery high for Sulfate (RPD is within limits) only one QC indicator out: no qualification necessary.

<u>_</u>

# **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

### Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
	<u> </u>			
		$\searrow$		
				<u>_</u>
	Grant Mon		<u> </u>	Date: 06/27/2023
Signature:	Grand Mon	y		Date:



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

July 25, 2023

Mark Haddock Rocksmith Geoengineering, LLC. 5233 Roanoke Drive Saint Charles, MO 63304

RE: Project: AMEREN-VERIFICATION, SCPC Pace Project No.: 60432876

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on July 12, 2023. 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,

Jami Church

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC. Grant Morey, Rocksmith Geoengineering, LLC.





### CERTIFICATIONS

Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

### **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 #: T104704407-22-16 Utah Certification #: KS000212022-12 Illinois Certification #: 004592 Kansas Field Laboratory Accreditation: # E-92587 Missouri SEKS Micro Certification: 10070



### SAMPLE SUMMARY

### Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60432876001	S-UG-2	Water	07/11/23 09:07	07/12/23 04:58
60432876002	S-DG-3	Water	07/11/23 11:45	07/12/23 04:58
60432876003	S-SCPC-DUP-1	Water	07/11/23 00:00	07/12/23 04:58
60432876004	S-SCPC-FB-1	Water	07/11/23 11:45	07/12/23 04:58



### SAMPLE ANALYTE COUNT

Project:AMEREN-VERIFICATION, SCPCPace Project No.:60432876

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60432876001	S-UG-2	EPA 200.7	MA1	1	PASI-K
60432876002	S-DG-3	EPA 200.7	MA1	1	PASI-K
		EPA 300.0	CRN2	1	PASI-K
60432876003	S-SCPC-DUP-1	EPA 200.7	MA1	1	PASI-K
		EPA 300.0	CRN2	1	PASI-K
60432876004	S-SCPC-FB-1	EPA 200.7	MA1	1	PASI-K
		EPA 300.0	CRN2	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City



Project:	AMEREN-VER	RIFICATION, SC	PC							
Pace Project No .:	60432876									
Sample: S-UG-2		Lab ID:	60432876001	Collecte	ed: 07/11/2	3 09:07	Received: 07/	12/23 04:58 M	atrix: Water	
Parame	eters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Tota	I	,	Method: EPA 2 lytical Services			hod: EP/	A 200.7			
Boron		291	ug/L	100	6.4	1	07/18/23 13:01	07/24/23 15:50	7440-42-8	



### Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

Sample: S-DG-3	Lab ID:	60432876002	Collecte	d: 07/11/2:	3 11:45	Received: 07/	12/23 04:58 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	-	Method: EPA 2 lytical Services			nod: EP	A 200.7			
Boron	82.5J	ug/L	100	6.4	1	07/18/23 13:01	07/24/23 15:57	7440-42-8	
300.0 IC Anions 28 Days		Method: EPA 3 lytical Services		ity					
Sulfate	75.8	mg/L	10.0	5.5	10		07/18/23 16:56	14808-79-8	



### Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

Sample: S-SCPC-DUP-1	Lab ID:	60432876003	Collecte	d: 07/11/23	3 00:00	Received: 07/	(12/23 04:58 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	,	Method: EPA 2	•		nod: EP	A 200.7			
Boron	82.2J	ug/L	100	6.4	1	07/18/23 13:01	07/24/23 16:04	7440-42-8	
300.0 IC Anions 28 Days	,	Method: EPA 3		ity					
Sulfate	73.7	mg/L	10.0	5.5	10		07/18/23 18:12	14808-79-8	



### Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

Sample: S-SCPC-FB-1	Lab ID:	60432876004	Collecte	d: 07/11/23	3 11:45	Received: 07/	12/23 04:58 Ma	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Method: EPA 2	•		nod: EP	A 200.7			
Boron	<6.4	ug/L	100	6.4	1	07/18/23 13:01	07/24/23 16:06	7440-42-8	
300.0 IC Anions 28 Days		Method: EPA 3		ity					
Sulfate	<0.55	mg/L	1.0	0.55	1		07/18/23 18:25	14808-79-8	



### **QUALITY CONTROL DATA**

Project: Pace Project No.:	AMER 604328		ATION, SCPC										
QC Batch:	8569	54		Analy	sis Metho	d:	EPA 200.7						
QC Batch Method:	EPA	200.7		Analy	/sis Descrij	ption:	200.7 Metal	s, Total					
				Labo	ratory:		Pace Analyt	ical Serv	vices - Kansa	as City			
Associated Lab Sa	mples:	604328760	001, 6043287600	02, 6043287	6003, 604	32876004							
METHOD BLANK:	33935	03			Matrix: W	ater							
Associated Lab Sa	mples:	604328760	01,6043287600	2, 6043287	6003, 6043	32876004							
				Blar	nk l	Reporting							
Para	meter		Units	Res	ult	Limit	MD	L	Analyzed	I Q	ualifiers		
Boron			ug/L		<6.4	10	00	6.4	07/24/23 15	:20			
LABORATORY CO	NTROL	SAMPLE:	3393504										
Dava			11.20	Spike	LC		LCS		Rec	0			
Para	meter		Units	Conc.	Res		% Rec		imits	Qualifiers	_		
Boron			ug/L	100	0	957	9	6	85-115				
MATRIX SPIKE & I	MATRIX	SPIKE DUPI	_ICATE: 3393	505		3393506	6						
				MS	MSD								
_			60432860001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	<b>.</b> .
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron		ug/L	299	1000	1000	1290	1280	ç	99 98	3 70-130	1	20	
MATRIX SPIKE & I	MATRIX	SPIKE DUPI	_ICATE: 3393	507		3393508	3						
				MS	MSD								
_			60432876001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	_
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron		ug/L	291	1000	1000	1250	1240	ę	96 95	5 70-130	1	20	
MATRIX SPIKE & I	MATRIX	SPIKE DUPI	LICATE: 3393	509		3393510	)						
				MS	MSD								
_			60432876002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	<b>.</b>
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	: % Rec	Limits	RPD	RPD	Qual
Boron		ug/L	82.5J	1000	1000	1040	1060	ę	96 98	3 70-130	1	20	

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.



### **QUALITY CONTROL DATA**

QC Batch: 856 QC Batch Method: EP/ Associated Lab Samples: METHOD BLANK: 3392 Associated Lab Samples: Parameter Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	2849 60432876	002, 6043287600 002, 6043287600 Units mg/L 3392850 Units mg/L	Anal Labo 3, 6043287	Matrix: W 76004 nk	ption: /ater Reporting Limit 1 CS	EPA 300.0 300.0 IC An Pace Analyt MD .0 KD MD KD KD	ical Servico	Analyzed 7/18/23 08:{ ec	Qu	ualifiers		
QC Batch Method: EP/ Associated Lab Samples: METHOD BLANK: 3392 Associated Lab Samples: Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	A 300.0 60432876 2849 60432876 L SAMPLE:	002, 6043287600 Units mg/L 3392850 Units	Anal Labo 13, 6043287 13, 6043287 13, 6043287 Bla Res Spike	ysis Descri pratory: 76004 Matrix: W 76004 nk .ult <0.55 LC Res	ption: /ater Reporting Limit 1 CS sult	300.0 IC An Pace Analyt	ical Service	Analyzed 7/18/23 08:{ ec	Qu 52	ualifiers		
Associated Lab Samples: METHOD BLANK: 3392 Associated Lab Samples: Parameter Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX	60432876 2849 60432876	002, 6043287600 Units mg/L 3392850 Units	Labo 13, 6043287 13, 6043287 Blai Res Spike	Matrix: W 76004 Matrix: W 76004 nk .ult <0.55	fater Reporting Limit 1 CS sult	Pace Analyt	ical Service	Analyzed 7/18/23 08:{ ec	Qu 52	alifiers		
METHOD BLANK: 3392 Associated Lab Samples: Parameter Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX	2849 60432876	002, 6043287600 Units mg/L 3392850 Units	13, 6043287 13, 6043287 Blai Res Spike	76004 Matrix: W 76004 nk .ult <0.55 LC Res	/ater Reporting Limit 1 2S sult	MD	L0.5507	Analyzed 7/18/23 08:{ ec	Qu 52	ualifiers		
Associated Lab Samples: Parameter Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	60432876	Units mg/L 3392850 Units	Blai Res Spike	76004 nk .ult	Reporting Limit 1	LCS	0.55 07	7/18/23 08:5	52	lalifiers		
Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX	L SAMPLE:	Units mg/L 3392850 Units	Blai Res Spike	nk -ult - 0.55 - LC - Re:	Limit 1	LCS	0.55 07	7/18/23 08:5	52	ualifiers		
Sulfate LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate Parameter Sulfate		mg/L 3392850 Units	Res	ult	Limit 1 CS Sult	LCS	0.55 07	7/18/23 08:5	52	ualifiers		
LABORATORY CONTROL Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate		3392850 Units	•	LC Res	CS sult	LCS	% R	ec				
Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate Sulfate		Units	•	Res	sult				Qualifiers			
Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate Sulfate		Units	•	Res	sult				Qualifiers			
Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	X SPIKE DUP		•	Res	sult				Jualifiers			
Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	X SPIKE DUP					70 100	L					
MATRIX SPIKE & MATRIX Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	X SPIKE DUP	mg/L		5	5.0	40				_		
Parameter Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate	X SPIKE DUP					10	9 9	90-110				
Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate		LICATE: 3392	851		3392852	2						
Sulfate MATRIX SPIKE & MATRIX Parameter Sulfate			MS	MSD								
MATRIX SPIKE & MATRIX Parameter Sulfate	Units	60432864004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Parameter Sulfate	mg/L	70.0	5	5	74.7	75.3	94	106	80-120	1	15	E
Parameter Sulfate	X SPIKE DUF	LICATE: 3392	854		339285	5						
Sulfate			MS	MSD								
Sulfate		60432876002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
SAMPLE DUPLICATE: 3	mg/L	75.8	50	50	126	124	101	96	80-120	2	15	
	3392853											
Parameter		Units	604328 Res		Dup Result	RPI	)	Max RPD	Qualif	iers		
Sulfate		mg/L		70.0	69	.9	0	15	Ē			
SAMPLE DUPLICATE: 3												
Parameter	3392856		604328 Res		Dup Result	RPI	)	Max RPD	Qualif	iers		
Sulfate	3392856	Units						15				
Guidto	3392856	Units mg/L		75.8	72	3	5					

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

### **REPORT OF LABORATORY ANALYSIS**

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### QUALIFIERS

Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

**RPD** - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60432876

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60432876001	S-UG-2	EPA 200.7	856954	EPA 200.7	856964
60432876002	S-DG-3	EPA 200.7	856954	EPA 200.7	856964
60432876003	S-SCPC-DUP-1	EPA 200.7	856954	EPA 200.7	856964
60432876004	S-SCPC-FB-1	EPA 200.7	856954	EPA 200.7	856964
60432876002	S-DG-3	EPA 300.0	856699		
60432876003	S-SCPC-DUP-1	EPA 300.0	856699		
60432876004	S-SCPC-FB-1	EPA 300.0	856699		

Pace DC#_Title: ENV-FRM	I-LENE-0009_San	WO#:60432876
ANALYFICAL SERVICES Revision: 2 Ef	fective Date: 01/12/	60432876
Client Name: Rocksnith		
Courier: FedEx 🗆 UPS 🗆 VIA 🗆 Clay 🗆	PEX 🗆 🛛 ECI 🗆	Pace 🗆 Xroads 💋 Client 🗆 Other 🗆
	ace Shipping Label Us	ed? Yes □ No 💋
Custody Seal on Cooler/Box Present: Yes	Seals intact: Yes	
Packing Material: Bubble Wrap  Bubble Bags Thermometer to the termination of termination		None D Other D C
	of Ice: Wet Blue N	
Cooler Temperature (°C): As-read 1.5 Corr. Fac	ctor <u>+0.</u> Correc	cted 1.7 examining contents: 07/12.2
Temperature should be above freezing to 6°C		
Chain of Custody present:		
Chain of Custody relinquished:	Yes No N/A	
Samples arrived within holding time:		
Short Hold Time analyses (<72hr):		
Rush Turn Around Time requested:	TYes No ON/A	
Sufficient volume:	ZYes DNo DN/A	
Correct containers used:	Yes No N/A	
Pace containers used:	1	
Containers intact:		
Jnpreserved 5035A / TX1005/1006 soils frozen in 48hrs?		
iltered volume received for dissolved tests?		
Sample labels match COC: Date / time / ID / analyses	Yes INO IN/A	
Samples contain multiple phases? Matrix: $\omega  au$		
containers requiring pH preservation in compliance?	Yes INO IN/A	List sample IDs, volumes, lot #'s of preservative and the
HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#:	67187	date/time added.
yanide water sample checks:		
ead acetate strip turns dark? (Record only) otassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	
NY	Yes No	
rip Blank present:	Yes No N/A	
eadspace in VOA vials ( >6mm):	□Yes □No ØN/A	
amples from USDA Regulated Area: State:		
ditional labels attached to 5035A / TX1005 vials in the field?		
ient Notification/ Resolution: Copy COC to		Field Data Required? Y / N
Prson Contacted: Date/Ti	ime:	
omments/ Resolution:		
oject Manager Review:	Date	

Qualtrax Document ID: 30468



# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section Require	Section A Required Client Information:	Section B Required Project Information:	t Infon	mation:				Sec	Section C Invoice Information:	ation:								-	Page	_	5	
Company:	Rocksmith Geoengineering, LLC	Report To: Mark Haddock	k Had	Mock				Attel	Attention:						-			1	L			
Address	1	Copy To: Jeffe	ary In	Jeffery Ingram, Grant Morey	ant Morey			ES.	pany Nat	Company Name: Rocksmith	ksmith				REG	ULATO	REGULATORY AGENCY	NCY				
	St. Charles, MO 63304							Add	Address:						E	I NPDES	ŀ	ROUNI	GROUND WATER	X	DRINKIN	DRINKING WATER
Email To;	dock@rocksmithgeo.com	Purchase Order No.: COC #1	No.:	COC #1				Pace	Pace Quote							UST	l ta	RCRA		Ŀт	OTHER	
Phone:	Phone: 314-974-5678 Fax	Project Name: Ameren - Verification Sampling	Ame	ren - Ven	fication S	ampling		Pace Pro	Pace Project	Jamie Church	Church				Ste	Site Location	L					
Request	Requested Due Date/TAT: Standard	Project Number. COO#1	8	英				Pace	Pace Profile #	15856, line 1	line 1				-	STATE:	ii.	₽	1			
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Kot paid within 30 days. \*important Note: By signing this form you are accepting Pace's NET 30 day payment let uns and agreeing to late changes of 1.5% per month for any involue

Samplee Intact (V/Y)

(N/J) Seated Cooler

Received on Ice (Y/V)

O° nl qmeT

FULL3

DATE Signed (MM/DD/YY):

Toch

4 17

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: SIGNATURE of SAMPLER:

		Other ZPLC										Misc.	Wipe/Swab 120ml Coliform Na Thiosulfate			tes	Kit	an		144.	INIGULIX			Non-aqueous Liquid			vater			
		MPDU BP3Z	_	+	-					_			Wipe/Swab	Ziploc Bad	Air Filter	Air Cassettes	Terracore Kit	Summa Can			2	Water	Solid	n-aque	_	Wipe	Urinking Water			
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Profile #	Nates	вьзл	٢	1		-	-	•			11	Plastic	11 NAOH plastic	1L H2SO4 plastic	1L unpreserved plastic	1L NaOH, Zn Acetate	500mL NAOH plastic	500mL HNO3 plastic	500ml unnreserved plastic	500mL NaOH, Zn Acetate	250mL NaOH plastic	HNO	250mL HNO3 plastic	250mL unpreserved plastic	250mL H2SO4 plastic	250mL NaOH, Zn Acetate	125mL unpreserved plastic	125mL H2SO4 plastic	16oz unpresserved plstic	
ā		BP1U											11 NA(	1L H2	1L unp	1L Na(	500mL	500mL	500ml	500mL	250mL	250mL	250mL	250mL	250mL	250mL	125ml	125mL	16oz u	
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Client:	Site:	DG90	_						1				L HCI	L MeO	LTSP	L H2S(	L BN	Lambe	Na T	L unpr	- H2SC	- unpre	n FG	ur Cu	16oz clear soil jar					_
		DC9H	_										40m 40m	40m	40m 1	40m	40m	40m	40	40m	1 lite	1lite	250r	250r	1602					Number:
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		Matrix	25	11	11	3	ト				Container Codes	l	DG9H DG9H	DG9M	DG9Q	DG9S	DG91		VG9T	VG9U	BG1S	BG1U	BG3H	BG3U	MGDU					Vork

DC#\_Title: ENV-FRM-LENE-0001\_Sample Container Count Revision: 3 | Effective Date: | Issued by: Lenexa Pace Analytical Services, LLC

Qualtrax Document ID: 30422

Page 1 of 1



## Memorandum August 16, 2023

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 – S	CPC Verification – Data Package 60432876

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 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).

### **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Company Name: Rocksmith Geoengineering	_ Project Manager: <u>J. Ingram</u>
Project Name: <u>Ameren SCPC Verification</u>	Project Number: 23009
Reviewer: G. Morey	Validation Date: 8/16/2023
Laboratory:       Pace Analytical         Analytical Method (type and no.):       EPA 200.7 (Boron), EPA 300.         Matrix:       Air       Soil/Sed.	SDG #:_60432876 0 (Sulfate)
Sample Names S-UG-2, S-DG-3, S-SCPC-DUP-1, S-SCPC-FB-1	

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

Field Information		YES	NO	NA	COMMENTS
a)	Sampling dates noted?	X			7/11/2023
b)	Sampling team indicated?	x			JSI
c)	Sample location noted?	X			
d)	Sample depth indicated (Soils)?			х	
e)	Sample type indicated (grab/composite)?	х			Grab
f)	Field QC noted?	х			See Notes
g)	Field parameters collected (note types)?	х			pH, Spec Cond, Turb, Temp, DO, ORP
h)	Field Calibration within control limits?	х			
i)	Notations of unacceptable field conditions/performa	nces fr	rom field lo	ogs or fie	eld 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			
0)	were samples received in good condition?	Ĺ			
Genera	al (reference QAPP or Method)	YES	NO	NA	COMMENTS
a)	Were hold times met for sample pretreatment?	×			
,		×			
b)	Were hold times met for sample analysis?				
c)	Were the correct preservatives used?	X			
d)	Was the correct method used?	×			
e)	Were appropriate reporting limits achieved?	×			Dilutions for some somelies noted for Sulf-t-
f)	Were any sample dilutions noted?	×			Dilutions for some samples noted for Sulfate.
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		
b)	Were analytes detected in the field blank(s)?		x		S-SCPC-FB-1 @ S-DG-3
c)	Were analytes detected in the equipment blank(s)?			×	
d)	Were analytes detected in the trip blank(s)?			X	
Labora	tory Control Sample (LCS)	YES	NO	NA	COMMENTS
a)	Was a LCS analyzed once per SDG?	х			
b)	Were the proper analytes included in the LCS?	x			
c)	Was the LCS accuracy criteria met?	Х			
Duplica	ates	YES	NO	NA	COMMENTS
a)	Were field duplicates collected (note original and du	iplicate	sample n	ames)?	
		х			S-SCPC-DUP-1 @ S-DG-3
b)	Were field dup. precision criteria met (note RPD)?	х			RPD = 0.4% (Boron), 2.8% (Sulfate)
c)	Were lab duplicates analyzed (note original and dup	olicate s	samples)?	?	
		х			Lab duplicates analyzed for Sulfate
d)	Were lab dup. precision criteria met (note RPD)?	X			RPDs: 0%, 5%
Blind S	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			
	Recovery could not be calculated since sample contained high concentration of analyte?				
b)	Was MSD accuracy criteria met?	x			
·	Recovery could not be calculated since sample contained high concentration of analyte?				
c)	Were MS/MSD precision criteria met?	х			

### Comments/Notes:

No qualifications necessary			
	<u> </u>		 

### **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

### Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
Signature:	Grant More	ry J		Date: 08/16/2023



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

August 15, 2023

Mark Haddock Rocksmith Geoengineering, LLC. 5233 Roanoke Drive Saint Charles, MO 63304

RE: Project: AMEREN-VERIFICATION, SCPC Pace Project No.: 60434384

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on August 02, 2023. 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,

Jami Church

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC. Grant Morey, Rocksmith Geoengineering, LLC.





### CERTIFICATIONS

Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60434384

### **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 #: T104704407-22-16 Utah Certification #: KS000212022-12 Illinois Certification #: 004592 Kansas Field Laboratory Accreditation: # E-92587 Missouri SEKS Micro Certification: 10070



### SAMPLE SUMMARY

Project: Pace Project No	AMEREN-VERIFICATION, SCPC 0.: 60434384			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
60434384001		Water	08/01/23 14:43	08/02/23 05:13



### SAMPLE ANALYTE COUNT

Project:AMEREN-VERIFICATION, SCPCPace Project No.:60434384

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60434384001	S-DG-3	SM 2540C	BDH1	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City



Project: Pace Project No.:	AMEREN-VEI 60434384	RIFICATION, SC	CPC							
Sample: S-DG-3		Lab ID:	60434384001	Collecte	ed: 08/01/2	3 14:43	Received: 08/	02/23 05:13 Ma	atrix: Water	
Parame	eters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Disso	lved Solids	,	Method: SM 25		City					
Total Dissolved Soli	ids	665	mg/L	10.0	10.0	1		08/04/23 09:38		



### **QUALITY CONTROL DATA**

Project:	AMEREN-VERIFI	ICATION, SCPC							
Pace Project No .:	60434384								
QC Batch:	859217		Analysis M	lethod:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis D	escription:	2540C Total	Dissolv	ed Solids		
			Laboratory	/:	Pace Analyt	ical Serv	/ices - Kai	nsas Ci	ty
Associated Lab Sam	ples: 60434384	4001							
METHOD BLANK:	3402514		Matr	ix: Water					
Associated Lab Sam	ples: 60434384	4001							
			Blank	Reporting	g				
Param	leter	Units	Result	Limit	MDI	-	Analyz	zed	Qualifiers
Total Dissolved Solid	ls	mg/L		0	5.0	5.0	08/04/23	09:35	
LABORATORY CON	ITROL SAMPLE:	3402515							
			Spike	LCS	LCS	%	Rec		
Param	eter	Units	Conc.	Result	% Rec	Li	mits	Qua	lifiers
Total Dissolved Solid	ls	mg/L	1000	1020	102	2	80-120		
SAMPLE DUPLICAT	E: 3402516								
5			6043430500				Max		0 11
Param	leter	Units	Result	Result		) 	RPD		Qualifiers
Total Dissolved Solid	ls	mg/L	133	0 1	350	1		10	
SAMPLE DUPLICAT	E: 3402517								
_			60434553002		_		Max		
Param	leter	Units	Result	Result	RPD	)	RPD		Qualifiers
Total Dissolved Solid	ls	mg/L	109	0 1	090	0		10	

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



### QUALIFIERS

Project: AMEREN-VERIFICATION, SCPC

Pace Project No.: 60434384

### 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.



AMEREN-VERIFICATION, SCPC

Project:

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Pace Project No.:	60434384				
Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60434384001	S-DG-3	SM 2540C	859217		

DC#_Title: ENV-FRM-LENE-0009_Si         Revision: 2         Effective Date: 01/1         Client Name:         Custorserser         Courier:         FedEx:       UPS:         VIA:       Clay         Pace       Pace         XroadsQ:       Client:         Ourier:       FedEx:         UPS:       VIA:         Cliant Arme:	·		1		WO#:6	0434384
Revision: 2       Effective Date: 01/1       DudAdor         Client Name:       Client Name:       Revision: 2       Pace Client Clay       Pece None         Courder:       FedEx U UPS VIA Clay       PEX ECI Pece Xoods 2       Client Other Clay         Tracking #:       Pace Shipping Label Usad?       Yes No Off         Packing Material:       Bubble Wmp Bubble Bags Foam None Other Classes       None Other Classes         Tremmonetry Usad       Castody present:       Ype of loc Work Bub None       Date and initiate of pergon         Cooler Temperature (*C):       As-read       Corr. Factor       Corrected       Stamming contents; Main Stamping Stamming contents; Main Stamping Stamming contents; Main Stamping Stampin		Pace	DC#_Title: ENV-F	RM-LENE-0009_S		
Courier:       FedEx       UPS       VIA       Clay       PEX       ECI       Pace I       Yroadsyle       Cleint       Other         Custody Seal on Cooler/Box Present:       Yes       No       Seals intact: Yes       No       Pecking Material:       Pecking Material:       No       Pecking Material:       Pecking Material:       No       Pecking Material:       Pecking Material:       Pecking Material:       Pecking Material:       No       Pecking Material:       Pecking Material:       Pecking Material:       Pecking Material:       No       Pecking Material:       Pecking Mate		AHALY71CAL SERVICES		Effective Date: 01/1	60434384	
Tracking #:       Pace Shipping Label Used?       Yes       No         Packing Material:       Bubble Warp       Bubble Bags       No       None©       Other         Packing Material:       Bubble Warp       Bubble Bags       Foram       None©       Other       Date and initials of person         Coolor Temporature (*C):       As-read 0.3       Corr. Factor       Corrected       0.5       Date and initials of person         Tamperature should be above freezing to 6*C       Corrected       0.5       Date and initials of person       Date and initials of person         Chain of Custody present:       Qres       No       No       No       Date and initials of person         Samples arrived within holding time:       Qres       No       No       No       No         Samples arrived within holding time:       Qres       No       No       No       Res         Sufficient volume:       Qres       No       No       No       Res       No       Res         Correct containers used:       Qres       No       No       No       No       Res       Res       Res       Res       Res       No       Res       Res       Res       Res       Res       Res       Res       Res       Res       R	Client Name		Rocksmith	2		
Custody Seal on Cooler/Box Present:       Yes       No       Seals intact:       Yes       No         Packing Material:       Bubble Wrap       Bubble Bags       Foam       Nones       Other         Cooler Temperature Solution       Exercised 0.3       Corr. Factor       Corrected       Other         Cooler Temperature Solution       Exercised 0.3       Corr. Factor       Corrected       Other         Chain of Custody present:       Wres       No       No       No         Samples arrived within holding time:       Tree       No       No         Short Hold Time analyses (<72hr):	Courier: Fe	dEx 🗆 UPS	VIA 🗆 Clay I		Pace 🗆 Xro	ads 🐙 Client 🗆 Other 🗆
Packing Material:       Bubble Wrap       Bubble Bags       Foam       Nones       Other         Thermometer Used:	Tracking #:			Pace Shipping Label U	sed? Yes 🗆 🛛 🕅	o 😤
Thermometer Used:	Custody Seal o					
Cooler Temperature (*C):       As-read       A.3       Corr. Factor       Corrected       State and initials of person ( branning contents; state)         Temperature should be above freezing to 6°C       Chain of Custody present:       State and initials of person ( branning contents; state)       Date and initials of person ( branning contents; state)         Chain of Custody present:       State and initials of person ( branning contents; state)       State and initials of person ( branning contents; state)       Date and initials of person ( branning contents; state)         Short Hold Time analyses (<72hr):			A 1 4			Other 🗆
Temperature should be above freezing to 6°C Chain of Custody present: Chain of Custody releant: Samples arrived within holding time: Short Hold Time analyses (<72hr): Vos & No NA Short Hold Time analyses (<72hr): Vos & No NA Short Hold Time analyses (<72hr): Vos & No NA Short Hold Time analyses (<72hr): Vos & No NA Strifficient volume: Vos & No NA Correct containers used: Vos No NA Correct containers used: Vos No NA Data Containers intact: Vos No NA Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? Vos No NA Samples contain multiple phases? Matrix: Vos No NA Samples contain multiple phases? Matrix: Vos No NA Samples contain multiple phases? Matrix: Vos No NA List sample IDs, volumes, lot #'s of preservative and date/time added. Exceptions: VOA Nidro, O&G, KS TPH, OK-DRO) LOT#: Vos No NA Samples from USDA Regulated Area: State: Vos No NA Stert Not Resolution: Copy COC to Clont? V / N Field Data Reguired? V / N						Date and initials of person examining contents:
Chain of Custody relinquished:       Image: Stress in the second se						the second se
Samples arrived within holding time: Short Hold Time analyses (<72hr): Yes Wros No NVA Rush Turn Around Time requested: Yes No NVA Correct containers used: Correct containers used: Correct containers used: Containers intact: Yes No NNA Pace containers intact: Yes No NNA Containers intact: Yes No NNA Samples contain multiple phases? Yes No NNA Sample labels match COC: Date / time / ID / analyses Sample sontain multiple phase? Yes No NNA Containers requiring PH preservation in compliance? Yes No NNA Sample sontain multiple phase? Yes No NNA Sample sontain constraint constr	Chain of Custod	y present:		¥Yes □No □N	/A	
Short Hold Time analyses (<72hr):	Chain of Custod	y relinquished	÷.	¥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:       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Catastium iodide test strip turns dark? (Record only)       Yes       No       N/A         Yes GNo       No       N/A       Ist sample IDs, volumes, lot #'s of preservative and date/time added.         Eveoptions:       Yes Mo       No       N/A         Yes GNo       No       N/A         Yes GNo       N/A       Ist sample IDs, volumes, lot #'s of preservative and date/t	Samples arrived	within holding	ı time:	Yes No No	/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         Samples contain multiple phases?       Matrix:       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Catastime added.       Exceptions: Yo, No       N/A       List sample IDs, volumes, lot #'s of preservative and date/time added.         Exceptions: Yo, No       No       N/A       Ist sample IDs, volumes, lot #'s of preservative and date/time added.         Propulse water sample checks:	Short Hold Time	e analyses (<	72hr):		/A	
Correct containers used: Correct containers used: Correct containers used: Containers used: Containers used: Containers used: Containers intact: Containers inters	Rush Turn Arou	und Time requ	uested:	Dres Kno DN	/A	
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Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? Yes No IN/A Filtered volume received for dissolved tests? Yes No IN/A Sample labels match COC: Date / time / ID / analyses Yes No IN/A Samples contain multiple phases? Matrix: Yes No IN/A Containers requiring pH preservation in compliance? Yes No IN/A Containers requiring pH preservation in compliance? Yes No IN/A Exceptions: VOA, Micro, 08G, KS TPH, OK-DRO) LOT#: Cyanide water sample checks: ead acetate strip turns dark? (Record only) Yes No Potassium iodide test strip turns due/purple? (Preserve) Yes No Trip Blank present: Yes No IN/A 4eadspace in VOA vials (>6mm): Yes No Samples from USDA Regulated Area: State: Yes No Samples from USDA Regulated Area: State: Yes No Additional labels attached to 5035A / TX1005 vials in the field? Yes No Pate/Time: Yes Yes No Pate/Time: Yes No Pate/Time: Yes	Containers intact	•				
Filtered volume received for dissolved tests?       Yes       No       N/A         Sample labels match COC: Date / time / ID / analyses       Yes       No       N/A         Sample labels match COC: Date / time / ID / analyses       Yes       No       N/A         Samples contain multiple phases?       Matrix:       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)       LOT#:       Ves       No         2yanide water sample checks:			1006 soils frozen in 48hr			
Sample labels match COC: Date / time / ID / analyses       Image: Sample labels match COC: Date / time / ID / analyses       Image: Sample labels match COC: Date / time / ID / analyses         Samples contain multiple phases?       Matrix:       Image: Sample labels match COC: Date / time / ID / analyses       Image: Sample labels match COC: Date / time / ID / analyses         Samples contain multiple phases?       Matrix:       Image: Sample labels match COC: Date / time / ID / analyses       Image: Sample labels match COC: Date / time / ID / analyses         Containers requiring pH preservation in compliance?       Image: Image: Sample labels and labels attached to Samples from USDA Regulated Area:       Image: Image: Sample labels attached to 5035A / TX1005 vials in the field?       Image: Image: Image: Sample labels attached to 5035A / TX1005 vials in the field?       Image:						
Samples contain multiple phases?       Matrix:       Yes       Yes       N/A         Containers requiring pH preservation in compliance?       Yes       N/A       List sample IDs, volumes, lot #'s of preservative and date/time added.         INNO_3, H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)       LOT#:         Cyanide water sample checks:						
Containers requiring pH preservation in compliance?       □Yes       □No       WNA       List sample IDs, volumes, lot #'s of preservative and date/time added.         HNO3, H <sub>2</sub> SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)       LOT#:       Lot#:         Cyanide water sample checks:						
HNO3, H₂SO4, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       date/time added.         Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)       LOT#:         Cyanide water sample checks:						volumes, lot #'s of preservative and
Cyanide water sample checks:  ead acetate strip turns dark? (Record only)   Potassium iodide test strip turns blue/purple? (Preserve)   Pres   No   Prip Blank present:   Pres   Headspace in VOA vials ( >6mm):   Pres   Samples from USDA Regulated Area:   State:   Pres   Pres   Additional labels attached to 5035A / TX1005 vials in the field?   Pres   Copy COC to Client?   Y   Person Contacted:   Date/Time:	(HNO3, H2SO4, HCI	<2; NaOH>9 St	ulfide, NaOH>10 Cyanide)		date/time addec	
Lead acetate strip turns dark? (Record only)   Potassium iodide test strip turns blue/purple? (Preserve)   Prip Blank present:   Prip Blank present:   Pression OVA vials (>6mm):   Pression OVA vials (>6mm):   Pression Ovalla (>6mm):   Pression Ovalla (>6mm):   Pression Contacted:   Comments/ Resolution:				LOT#:	-	
Trip Blank present:       Image: Yes to No       N/A         Headspace in VOA vials (>6mm):       Image: Yes to No       N/A         Samples from USDA Regulated Area:       State:       Image: Yes to No       N/A         Additional labels attached to 5035A / TX1005 vials in the field?       Image: Yes to No       Image: No       Image: No         Client Notification/ Resolution:       Copy COC to Client?       Y / N       Field Data Required?       Y / N         Person Contacted:	•	•		□Yes □No		
Headspace in VOA vials ( >6mm):       Image: State:	Potassium iodide	test strip turn	s blue/purple? (Preserve	) 🛛 Yes 🖓 No		
Samples from USDA Regulated Area:       State:       Yes INo       N/A         Additional labels attached to 5035A / TX1005 vials in the field?       Yes INo       N/A         Client Notification/ Resolution:       Copy COC to Client?       Y / N       Field Data Required?       Y / N         Person Contacted:	Trip Blank preser	nt:			A	
Additional labels attached to 5035A / TX1005 vials in the field? Ves No No Additional labels attached to 5035A / TX1005 vials in the field? Ves No No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials in the field? Ves No Additional labels attached to 5035A / TX1005 vials attached to 5035A / TX1005 via	Headspace in VC	A vials ( >6m	m):	□Yes 🖄No □N/	A	
Client Notification/ Resolution:       Copy COC to Client? Y / N       Field Data Required? Y / N         Person Contacted:	Samples from US	DA Regulated	d Area: State:		A	
Client Notification/ Resolution:       Copy COC to Client? Y / N       Field Data Required? Y / N         Person Contacted:				e field? 🗆 Yes 🏹 No 🗆 N/.	A	
Comments/ Resolution:					Field Data R	equired? Y / N
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# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Regulated C	Section A Recuired Client Information:	Section B Required Project tribunation:	miert tr	ntima	tion.					Section C	υ	ļ										Ľ	Page:	-	ď	-	
Company:	y: Rocksmith Geoengineering, LLC	Report To: Mark Haddock	Mark I	Haddo	ock				Ĩ	Attention:								_									
Address.	5233 Roanoke Drive	Copy To: Jeffery Ingram, Grant Morey	leffery	/ Ingr	am, Gr	ant More	No.		T	Company Name: Rocksmith	y Name	Roc	ksmith					W	REGULATORY	TORY	AGENCY	Š					
	St. Charles, MO 63304									Address:	11.12.hr							I.	NPDES		5	GINDO	GROUND WATER	L cc	DRINK	DRINKING WATER	E
Email To:	K mark haddock@rocksmithgeo.com	Purchase Order No.: COC #1	rder No	S	0C#1					Pace Quote	<u>e</u> .								UST	a la		RCRA			OTHER	E C	
Phone:	Phone: 314-974-5678 Fax	Project Name: Ameren - Verification Sampling	A a	mere	n - Veri	ification	Sampli	56	24	Pace Proje		amie	Jamie Church					ŝ	Site Location	-							
Request	Requested Due Date/TAT: Standard	Project Number, COC#1	aber. O	きの	<b>5</b> -					Pace Profile #:		5856,	15856, line 1					-	STA	STATE:	Į	§	1				
									1					Γ		Requ	Requested	Anal	ysis F	Itteret	Analysis Filtered (YIN)						
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	DRINGING WATER WATER WASTE WATER PRODUCT SOIL/SOLID OIL	ww Www Signalia Www Signalia	asboo blisv eee	))=) 8496=	COMPOSITE		§ā.	COMPOSITE		s					<b>1</b>								(N/J) (				
# Walli	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	AR OT TS		l	DATE	TIME	DATE	TIME	TA 9MBT 3J9MAS	# OF CONTAINER Unpreserved	HNO <sup>3</sup> H <sup>5</sup> 80 <sup>4</sup>	HCI	NaOH NaCS2O3 Nathand	Methanol Other	<b>test sisylenA 4</b> PDS	Sulfate	Chloride	TOX TOX	Calcium				Residual Chlorine	S as	Project	60434384 Pace Project No./ Lab ID	I.D.
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F-ALL-Q-020rev.08, 12-Oct-2007

\*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 involves not paid within 30 days

Image: Constraint of the second sec
1. Lot Thiosuffate clear/amber glass     BP2N     500mL HNO3 plastic     U       1. L Na Thiosuffate clear/amber glass     BP2S     500mL H2SO4 plastic     U       1 lifter unpres amber glass     BP2U     500mL H2SO4 plastic     V       500mL HNO3 amber glass     BP2Z     500mL unpreserved plastic     V       500mL H2SO4 amber glass     BP3Z     250mL NuO3 plastic     VT       500mL unpres amber glass     BP3X     250mL LNO3 plastic     NT       500mL unpres amber glass     BP3N     250mL UNO3 plastic     NT       500mL unpres amber glass     BP3N     250mL UNO3 plastic     NT       1256mL unpres amber glass     BP3N     250mL UNO3 plastic     NAL       1256mL unpres amber glass     BP3N     250mL UNO3 plastic     NAL       125mL unpres amber glass     BP3U     250mL NAO3 plastic     NAL       125mL unpres amber glass     BP3U     250mL NAO3 plastic     NAL       100mL unpres amber glass     BP3Z     250mL NAO3 plastic     NAL       100mL unpres amber glass     BP3Z     250mL NAO3 plastic     NAL

Pace Analytical Services, LLC



# Memorandum August 16, 2023

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 – S	CPC Verification – Data Package 60434384

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

None.

### **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Company Name: Rocksmith Geoengineering	Project Manager: <u>J. Ingram</u>
Project Name: Ameren SCPC Verification	Project Number: <sup>23009</sup>
Reviewer: G. Morey	Validation Date: 8/16/2023
Laboratory: <u>Pace Analytical</u> Analytical Method (type and no.): SM 2540C (TDS)	SDG #:_60434384
Matrix: Air Soil/Sed. Water Waste Sample Names S-DG-3	

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

Field Ir	nformation	YES	NO	NA	COMMENTS
a)	Sampling dates noted?	х			8/1/2023
b)	Sampling team indicated?	х			GTM
c)	Sample location noted?	х			
d)	Sample depth indicated (Soils)?			х	
e)	Sample type indicated (grab/composite)?	x			Grab
f)	Field QC noted?		x		No field QC collected, additional sample
g)	Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h)	Field Calibration within control limits?	х			
i)	Notations of unacceptable field conditions/performations	nces fr	om field lo	ogs or field	I 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?	×			
c)	Were samples received in good condition?	x			
Genera	al (reference QAPP or Method)	YES	NO	NA	COMMENTS
a)	Were hold times met for sample pretreatment?	х			
b)	Were hold times met for sample analysis?	х			
c)	Were the correct preservatives used?	х			
d)	Was the correct method used?	x			
e)	Were appropriate reporting limits achieved?	х			
f)	Were any sample dilutions noted?		х		
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)?			х	
c)	Were analytes detected in the equipment blank(s)?			х	
d)	Were analytes detected in the trip blank(s)?			х	
Labora	tory Control Sample (LCS)	YES	NO	NA	COMMENTS
a)	Was a LCS analyzed once per SDG?	х			
b)	Were the proper analytes included in the LCS?	х			
c)	Was the LCS accuracy criteria met?	х			
Duplica	ites	YES	NO	NA	COMMENTS
a)	Were field duplicates collected (note original and du	uplicate	sample n	ames)?	
			×		
b)	Were field dup. precision criteria met (note RPD)?			х	
c)	Were lab duplicates analyzed (note original and dup	olicate	samples)?	)	
		х			
d)	Were lab dup. precision criteria met (note RPD)?	X			RPDs: 0%, 1%
Blind S	tandards	YES	NO	NA	COMMENTS
a)	Was a blind standard used (indicate name,			х	
	analytes included and concentrations)?				
b)	Was the %D within control limits?			х	
Matrix	Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a)	Was MS accuracy criteria met?			х	
	Recovery could not be calculated since sample contained high concentration of analyte?				
b)	Was MSD accuracy criteria met?			х	
-	Recovery could not be calculated since sample contained high concentration of analyte?				
c)	Were MS/MSD precision criteria met?			х	

### Comments/Notes:

No qualifications necessary. No field QC collected, follow-up sample to SCPC verification sampling event.

### **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

### Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
$\overline{\}$				
Signature:	Grant More	uj		Date: 08/16/2023



January 22, 2024

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

RE: Project: AMEREN SCPC Pace Project No.: 60442112

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between November 11, 2023 and November 15, 2023. 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

REV-1, 1/20/24: Sample UG-2 added to report.

REV-2, 1/22/34: Samples S-BMW-1S and S-BMW-3S added to report.

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

Sincerely,

Jami Church

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC. Grant Morey, Rocksmith Geoengineering, LLC.





### CERTIFICATIONS

Project: AMEREN SCPC Pace Project No.: 60442112

### 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



### SAMPLE SUMMARY

Project: AMEREN SCPC Pace Project No.: 60442112

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60442112001	S-UG-1A	Water	11/13/23 09:45	11/15/23 05:11
60442112003	S-DG-1	Water	11/13/23 10:35	11/15/23 05:11
60442112004	S-DG-2	Water	11/13/23 11:20	11/15/23 05:11
60442112005	S-DG-3	Water	11/13/23 12:07	11/15/23 05:11
60442112006	S-DG-4	Water	11/13/23 13:00	11/15/23 05:11
60442112007	S-SCPC-DUP-1	Water	11/13/23 08:00	11/15/23 05:11
60442112008	S-SCPC-FB-1	Water	11/13/23 10:28	11/15/23 05:11
60442112002	S-UG-2	Water	11/13/23 10:53	11/15/23 05:11
60441897001	S-BMW-1S	Water	11/10/23 09:57	11/11/23 04:50
60441897002	S-BMW-3S	Water	11/10/23 09:18	11/11/23 04:50



### SAMPLE ANALYTE COUNT

Project: AMEREN SCPC Pace Project No.: 60442112

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60442112001	S-UG-1A	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112003	S-DG-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112004	S-DG-2	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112005	S-DG-3	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112006	S-DG-4	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112007	S-SCPC-DUP-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112008	S-SCPC-FB-1	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60442112002	S-UG-2	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60441897001	S-BMW-1S	EPA 200.7	JXD	7	PASI-K
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K



#### SAMPLE ANALYTE COUNT

Project: Pace Project	AMEREN SCPC No.: 60442112				
Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	BMT	1	PASI-K
		SM 2540C	ZVF	1	PASI-K
		EPA 300.0	RKA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City



# Project: AMEREN SCPC

Pace Project No.: 60442112

Sample: S-UG-1A	Lab ID:	60442112001	Collecte	d: 11/13/23	8 09:45	Received: 11/	15/23 05:11 Ma	atrix: Water		
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	aration Meth	od: EP	A 200.7				
	Pace Anal	vtical Services	- Kansas C	ity						
Boron	165	ug/L	100	6.4	1	11/30/23 10:05	12/06/23 10:19	7440-42-8		
Calcium	157000	ug/L	200	26.9	1	11/30/23 10:05	12/06/23 10:19	7440-70-2	M1	
Iron	11.0J	ug/L	50.0	9.1	1	11/30/23 10:05	12/06/23 10:19	7439-89-6		
Magnesium	36400	ug/L	50.0	20.1	1	11/30/23 10:05	12/06/23 10:19	7439-95-4	M1	
Manganese	355	ug/L	5.0	0.39	1	11/30/23 10:05	12/06/23 10:19	7439-96-5		
Potassium	10700	ug/L	500	69.7	1	11/30/23 10:05	12/06/23 10:19	7440-09-7		
Sodium	43300	ug/L	500	115	1	11/30/23 10:05	12/06/23 10:19	7440-23-5		
2320B Alkalinity	Analytical	Method: SM 23	320B							
	Pace Anal	vtical Services	- Kansas C	ity						
Alkalinity, Total as CaCO3	428	mg/L	20.0	10.5	1		11/22/23 21:04			
2540C Total Dissolved Solids	Analytical Method: SM 2540C									
	Pace Anal	vtical Services	- Kansas C	ity						
Total Dissolved Solids	672	mg/L	13.3	13.3	1		11/20/23 13:15			
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0							
	Pace Anal	vtical Services	- Kansas C	ity						
Chloride	74.8	mg/L	10.0	5.3	10		12/12/23 15:18	16887-00-6	H1	
Fluoride	<0.12	mg/L	0.20	0.12	1		12/12/23 14:10	16984-48-8	H1,L1	
Sulfate	52.7	mg/L	10.0	5.5	10		12/12/23 15:18	14808-79-8	H1	



Project:	AMEREN SCPC

Pace Project No.: 60442112

Sample: S-DG-1	Lab ID:	60442112003	Collected	: 11/13/23	8 10:35	Received: 11/	15/23 05:11 Ma	atrix: Water		
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Method: EPA 2 lytical Services	•		iod: EP/	A 200.7				
Boron Calcium Iron Magnesium Manganese Potassium	107 138000 263 32900 152 4100	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 5.0	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05	12/06/23 10:27 12/06/23 10:27 12/06/23 10:27 12/06/23 10:27 12/06/23 10:27 12/06/23 10:27	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7		
Sodium 2320B Alkalinity	Analytical Pace Anal	<b>4630</b> ug/L 500 115 1 11/30/23 10:05 12/06/23 10:27 7440-23-5 Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	,	mg/L Method: SM 25 lytical Services		10.5 y	1		11/22/23 21:23			
Total Dissolved Solids 300.0 IC Anions 28 Days		mg/L Method: EPA 3 lytical Services		10.0 y	1		11/20/23 13:15			
Chloride Fluoride Sulfate	2.5 <0.12 19.4	mg/L mg/L mg/L	1.0 0.20 1.0	0.53 0.12 0.55	1 1 1		12/12/23 16:27 12/12/23 16:27 12/12/23 16:27	16984-48-8	H1 H1,L1 H1	



Project:	AMEREN SCPC
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Pace Project No.: 60442112

Sample: S-DG-2	Lab ID:	60442112004	Collecte	d: 11/13/23	8 11:20	Received: 11/	15/23 05:11 Ma	atrix: Water		
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Method: EPA 2 ytical Services	•		iod: EP/	A 200.7				
Boron Calcium Iron Magnesium Manganese Potassium	82.0J 133000 278 27800 484 6670	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05 11/30/23 10:05	12/06/23 10:29 12/06/23 10:29 12/06/23 10:29 12/06/23 10:29 12/06/23 10:29 12/06/23 10:29	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7	M1	
Sodium 2320B Alkalinity Alkalinity, Total as CaCO3	Analytical	4300         ug/L         500         115         1         11/30/23         10:05         12/06/23         10:29         7440-23-5           Analytical Method:         SM 2320B         Pace Analytical Services - Kansas City         11/22/23         11/22/23         11:30           406         mg/L         20.0         10.5         1         11/22/23         21:30								
2540C Total Dissolved Solids	Analytical	mg/L Method: SM 25 ytical Services	40C		·		11/22/20 2 1100			
Total Dissolved Solids 300.0 IC Anions 28 Days	505         mg/L         10.0         10.0         1         11/20/23         13:15           Analytical Method: EPA 300.0         Pace Analytical Services - Kansas City         Image: Comparison of the services - Kansas City									
Chloride Fluoride Sulfate	2.3 <0.12 35.2	mg/L mg/L mg/L	1.0 0.20 10.0	0.53 0.12 5.5	1 1 10		12/12/23 16:49 12/12/23 16:49 12/12/23 17:26	16984-48-8	H1 H1,L1 H1	



Project: AN	IEREN SCPC
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Pace Project No.: 60442112

Sample: S-DG-3	Lab ID:	60442112005	Collecte	d: 11/13/23	3 12:07	Received: 11/	15/23 05:11 M	atrix: Water			
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
200.7 Metals, Total		Method: EPA 2	•		nod: EP	A 200.7					
	Pace Anal	ytical Services	- Kansas C	ity							
Boron	81.9J	ug/L	100	6.4	1	11/30/23 10:05	12/06/23 10:33	7440-42-8			
Calcium	160000	ug/L	200	26.9	1	11/30/23 10:05	12/06/23 10:33	7440-70-2			
Iron	94.6	ug/L	50.0	9.1	1	11/30/23 10:05	12/06/23 10:33	7439-89-6			
Magnesium	33300	ug/L	50.0	20.1	1	11/30/23 10:05	12/06/23 10:33	7439-95-4			
Manganese	940	ug/L	5.0	0.39	1	11/30/23 10:05	12/06/23 10:33	7439-96-5			
Potassium	5070	ug/L	500	69.7	1	11/30/23 10:05	12/06/23 10:33	7440-09-7			
Sodium	4900	ug/L	500	115	1	11/30/23 10:05	12/06/23 10:33	7440-23-5			
2320B Alkalinity	Analytical	Method: SM 23	320B								
	Pace Anal	ytical Services	- Kansas C	ity							
Alkalinity, Total as CaCO3	463	mg/L	20.0	10.5	1		11/22/23 21:36				
2540C Total Dissolved Solids	Analytical Method: SM 2540C										
	Pace Anal	ytical Services	- Kansas C	ity							
Total Dissolved Solids	594	mg/L	10.0	10.0	1		11/20/23 13:15				
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0								
-	Pace Anal	ytical Services	- Kansas C	ity							
Chloride	8.2	mg/L	1.0	0.53	1		12/13/23 14:29	16887-00-6	H1		
Fluoride	<0.12	mg/L	0.20	0.12	1		12/13/23 14:29	16984-48-8	H1,L1		
Sulfate	65.1	mg/L	5.0	2.8	5		12/12/23 17:36	14808-79-8	H1		



# Project: AMEREN SCPC

Pace Project No.: 60442112

Sample: S-DG-4	Lab ID:	60442112006	Collected	d: 11/13/23	3 13:00	Received: 11/	15/23 05:11 M	atrix: Water		
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Method: EPA 2 ytical Services	•		iod: EP/	A 200.7				
Boron Calcium Iron Magnesium Manganese Potassium	105 154000 14.7J 47800 1070 6690	ug/L ug/L ug/L ug/L ug/L ug/L	100 200 50.0 50.0 5.0 500	6.4 26.9 9.1 20.1 0.39 69.7	1 1 1 1 1	12/04/23 11:18 12/04/23 11:18 12/04/23 11:18 12/04/23 11:18 12/04/23 11:18 12/04/23 11:18	12/06/23 09:33 12/06/23 09:33 12/06/23 09:33 12/06/23 09:33 12/06/23 09:33 12/06/23 09:33	7440-70-2 7439-89-6 7439-95-4 7439-96-5 7440-09-7		
Sodium 2320B Alkalinity	Analytical Pace Anal	8870 ug/L 500 115 1 12/04/23 11:18 12/06/23 09:33 7440-23-5 Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3 2540C Total Dissolved Solids	Pace Anal	mg/L Method: SM 25 ytical Services	- Kansas C	,	1		11/22/23 21:54			
Total Dissolved Solids 300.0 IC Anions 28 Days	732         mg/L         13.3         13.3         1         11/20/23         13:15           Analytical Method: EPA 300.0         Pace Analytical Services - Kansas City         Image: Comparison of Comp									
Chloride Fluoride Sulfate	12.4 <0.12 63.3	mg/L mg/L mg/L	1.0 0.20 10.0	0.53 0.12 5.5	1 1 10		12/12/23 17:59 12/12/23 17:59 12/12/23 18:10	16984-48-8	H1 H1,L1 H1	



# Project: AMEREN SCPC

Pace Project No.: 60442112

Sample: S-SCPC-DUP-1	Lab ID:	60442112007	Collected	d: 11/13/23	8 08:00	Received: 11/	15/23 05:11 Ma	atrix: Water			
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	ration Meth	nod: EP	A 200.7					
	Pace Anal	ytical Services	- Kansas C	ity							
Boron	75.9J	ug/L	100	6.4	1	12/04/23 11:18	12/06/23 09:39	7440-42-8			
Calcium	120000	ug/L	200	26.9	1	12/04/23 11:18	12/06/23 09:39	7440-70-2	M1		
Iron	243	ug/L	50.0	9.1	1	12/04/23 11:18	12/06/23 09:39	7439-89-6			
Magnesium	25100	ug/L	50.0	20.1	1	12/04/23 11:18	12/06/23 09:39	7439-95-4	M1		
Manganese	433	ug/L	5.0	0.39	1	12/04/23 11:18	12/06/23 09:39	7439-96-5	M1		
Potassium	6150	ug/L	500	69.7	1	12/04/23 11:18	12/06/23 09:39	7440-09-7			
Sodium	3840	ug/L	500	115	1	12/04/23 11:18	12/06/23 09:39	7440-23-5	M1		
2320B Alkalinity	Analytical	Method: SM 23	20B								
	Pace Anal	ytical Services	- Kansas C	ity							
Alkalinity, Total as CaCO3	395	mg/L	20.0	10.5	1		11/22/23 22:01				
2540C Total Dissolved Solids	Analytical Method: SM 2540C										
	Pace Anal	ytical Services	- Kansas Ci	ity							
Total Dissolved Solids	468	mg/L	10.0	10.0	1		11/20/23 13:15				
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0								
-	Pace Anal	ytical Services	- Kansas C	ity							
Chloride	2.3	mg/L	1.0	0.53	1		12/12/23 18:22	16887-00-6	H1		
Fluoride	<0.12	mg/L	0.20	0.12	1		12/12/23 18:22	16984-48-8	H1,L1		
Sulfate	32.1	mg/L	10.0	5.5	10		12/12/23 18:33	14808-79-8	H1		



# Project: AMEREN SCPC

Pace Project No.: 60442112

Sample: S-SCPC-FB-1	Lab ID:	60442112008	Collected	: 11/13/23	10:28	Received: 11/	15/23 05:11 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepar	ation Meth	od: EP/	A 200.7			
	Pace Anal	ytical Services	<ul> <li>Kansas Cit</li> </ul>	у					
Boron	<6.4	ug/L	100	6.4	1	12/04/23 11:18	12/06/23 09:41	7440-42-8	
Calcium	<26.9	ug/L	200	26.9	1	12/04/23 11:18	12/06/23 09:41	7440-70-2	
Iron	<9.1	ug/L	50.0	9.1	1	12/04/23 11:18	12/06/23 09:41	7439-89-6	
Magnesium	<20.1	ug/L	50.0	20.1	1	12/04/23 11:18	12/06/23 09:41	7439-95-4	
Manganese	0.55J	ug/L	5.0	0.39	1	12/04/23 11:18	12/06/23 09:41	7439-96-5	
Potassium	<69.7	ug/L	500	69.7	1	12/04/23 11:18	12/06/23 09:41	7440-09-7	
Sodium	<115	ug/L	500	115	1	12/04/23 11:18	12/06/23 09:41	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	20B						
	Pace Anal	ytical Services	- Kansas Cit	у					
Alkalinity, Total as CaCO3	<10.5	mg/L	20.0	10.5	1		11/22/23 22:07		
2540C Total Dissolved Solids	Analytical	Method: SM 25	40C						
	Pace Anal	ytical Services	- Kansas Cit	у					
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		11/20/23 13:16		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0						
	Pace Anal	ytical Services	- Kansas Cit	у					
Chloride	<0.53	mg/L	1.0	0.53	1		12/12/23 18:45	16887-00-6	H1
Fluoride	<0.12	mg/L	0.20	0.12	1		12/12/23 18:45	16984-48-8	H1,L1
Sulfate	<0.55	mg/L	1.0	0.55	1		12/12/23 18:45	14808-79-8	H1



Pace Project No.: 60442112

Sample: S-UG-2	Lab ID:	60442112002	Collected	1: 11/13/23	8 10:53	Received: 11/	15/23 05:11 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	ration Meth	od: EP/	A 200.7			
	Pace Anal	vtical Services	- Kansas Ci	ty					
Boron	1700	ug/L	100	6.4	1	11/30/23 10:05	12/06/23 10:25	7440-42-8	
Calcium	119000	ug/L	200	26.9	1	11/30/23 10:05	12/06/23 10:25	7440-70-2	
Iron	<9.1	ug/L	50.0	9.1	1	11/30/23 10:05	12/06/23 10:25	7439-89-6	
Magnesium	24300	ug/L	50.0	20.1	1	11/30/23 10:05	12/06/23 10:25	7439-95-4	
Manganese	160	ug/L	5.0	0.39	1	11/30/23 10:05	12/06/23 10:25	7439-96-5	
Potassium	3710	ug/L	500	69.7	1	11/30/23 10:05	12/06/23 10:25	7440-09-7	
Sodium	14900	ug/L	500	115	1	11/30/23 10:05	12/06/23 10:25	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	20B						
	Pace Anal	vtical Services	- Kansas Ci	ty					
Alkalinity, Total as CaCO3	309	mg/L	20.0	10.5	1		11/22/23 21:17		
2540C Total Dissolved Solids	Analytical	Method: SM 25	40C						
	Pace Anal	vtical Services	- Kansas Ci	ty					
Total Dissolved Solids	483	mg/L	10.0	10.0	1		11/20/23 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0						
	Pace Anal	ytical Services	- Kansas Ci	ty					
Chloride	12.9	mg/L	1.0	0.53	1		12/12/23 16:04	16887-00-6	H1
Fluoride	<0.12	mg/L	0.20	0.12	1		12/12/23 16:04	16984-48-8	H1,L1
Sulfate	0.79J	mg/L	1.0	0.55	1		12/12/23 16:04	14808-79-8	H1



# Project: AMEREN SCPC

Pace Project No.: 60442112

Lab ID:	60441897001	Collected	11/10/23	09:57	Received: 11/	11/23 04:50 Ma	atrix: Water	
Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
		•		od: EP/	A 200.7			
Pace Anal	ytical Services	<ul> <li>Kansas Cit</li> </ul>	у					
57.9J	ug/L	100	6.4	1	11/28/23 12:31	11/29/23 10:15	7440-42-8	
136000	ug/L	200	26.9	1	11/28/23 12:31	11/29/23 10:15	7440-70-2	
57.0	ug/L	50.0	9.1	1	11/28/23 12:31	11/29/23 10:15	7439-89-6	
26600	ug/L	50.0	20.1	1	11/28/23 12:31	11/29/23 10:15	7439-95-4	
489	ug/L	5.0	0.39	1	11/28/23 12:31	11/29/23 10:15	7439-96-5	
633	ug/L	500	69.7	1	11/28/23 12:31	11/29/23 10:15	7440-09-7	
5970	ug/L	500	115	1	11/28/23 12:31	11/29/23 10:15	7440-23-5	
Analytical	Method: SM 23	20B						
Pace Anal	vtical Services	- Kansas Cit	у					
427	mg/L	20.0	10.5	1		11/21/23 20:50		
Analytical	Method: SM 25	40C						
Pace Anal	vtical Services	- Kansas Cit	у					
475	mg/L	10.0	10.0	1		11/17/23 14:43		
Analytical	Method: EPA 3	00.0						
Pace Anal	vtical Services	- Kansas Cit	у					
7.2	mg/L	1.0	0.53	1		12/07/23 13:26	16887-00-6	
<0.12	mg/L	0.20	0.12	1		12/07/23 13:26	16984-48-8	L1
46.9	mg/L	5.0	2.8	5		12/08/23 21:55	14808-79-8	
	Results           Analytical           Pace Analytical           57.9J           136000           57.0           26600           489           633           5970           Analytical           Pace Analytical      <	Analytical Method: EPA 2 Pace Analytical Services 57.9J ug/L 136000 ug/L 57.0 ug/L 26600 ug/L 633 ug/L 5970 ug/L Analytical Method: SM 23 Pace Analytical Services 427 mg/L Analytical Method: SM 25 Pace Analytical Services 475 mg/L Analytical Method: EPA 3 Pace Analytical Services 7.2 mg/L <0.12 mg/L	ResultsUnitsPQLAnalytical Method: EPA 200.7Prepar Pace Analytical Services - Kansas Cit $57.9J$ ug/L100136000ug/L200 $57.0$ ug/L50.026600ug/L50.026600ug/L50.0489ug/L5.0633ug/L5005970ug/L500Analytical Method: SM 2320BPace Analytical Services - Kansas Cit427mg/L20.0Analytical Method: SM 2540CPace Analytical Services - Kansas Cit475mg/L10.0Analytical Method: EPA 300.0Pace Analytical Services - Kansas Cit7.2mg/L1.0<0.12	ResultsUnitsPQLMDLAnalytical Method: EPA 200.7Preparation Meth Pace Analytical Services - Kansas City $57.9J$ ug/L1006.4 $136000$ ug/L20026.9 $57.0$ ug/L50.09.1 $26600$ ug/L50.020.1 $489$ ug/L5.00.39 $633$ ug/L50069.7 $5970$ ug/L500115Analytical Method: SM 2320BPace Analytical Services - Kansas City $427$ mg/L20.010.5Analytical Method: SM 2540CPace Analytical Services - Kansas City $475$ mg/L10.010.0Analytical Method: EPA 300.0Pace Analytical Services - Kansas City $475$ mg/L1.00.53 $7.2$ mg/L1.00.53 $<0.12$ mg/L0.200.12	Results         Units         PQL         MDL         DF           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         9         1         1         1         136000         ug/L         200         26.9         1	Results         Units         PQL         MDL         DF         Prepared           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         57.9J         ug/L         100         6.4         1         11/28/23 12:31           136000         ug/L         200         26.9         1         11/28/23 12:31           57.0         ug/L         50.0         9.1         1         11/28/23 12:31           57.0         ug/L         50.0         20.1         1         11/28/23 12:31           26600         ug/L         50.0         20.1         1         11/28/23 12:31           26600         ug/L         50.0         20.1         1         11/28/23 12:31           633         ug/L         500         69.7         1         11/28/23 12:31           633         ug/L         500         115         1         11/28/23 12:31           5970         ug/L         500         115         1         11/28/23 12:31           Analytical Method: SM 2320B         20.0         10.5         1           Analytical Services - Kansas City         427         mg/L         10.0         10.0         1 <td< td=""><td>Results         Units         PQL         MDL         DF         Prepared         Analyzed           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         11/28/23 12:31         11/29/23 10:15           57.9J         ug/L         100         6.4         1         11/28/23 12:31         11/29/23 10:15           136000         ug/L         200         26.9         1         11/28/23 12:31         11/29/23 10:15           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15           26600         ug/L         50.0         20.1         1         11/28/23 12:31         11/29/23 10:15           633         ug/L         500         69.7         1         11/28/23 12:31         11/29/23 10:15           5970         ug/L         500         115         1         11/28/23 12:31         11/29/23 10:15           Analytical Method: SM 2320B         Pace Analytical Services - Kansas City         1         11/21/23 20:50         11/21/23 20:50           Analytical Method: SM 2540C         Pace Analytical Services - Kansas City         1         11/17/23 14:43           Analytical Method: EPA 300.0         Pace Analytical Services - Kansas City         <t< td=""><td>Results         Units         PQL         MDL         DF         Prepared         Analyzed         CAS No.           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         11/28/23 12:31         11/29/23 10:15         7440-42-8           136000         ug/L         200         26.9         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7439-89-6           26600         ug/L         50.0         20.1         1         11/28/23 12:31         11/29/23 10:15         7439-95-4           489         ug/L         5.0         0.39         1         11/28/23 12:31         11/29/23 10:15         7440-09-7           5970         ug/L         500         115         1         11/28/23 12:31         11/29/23 10:15         7440-23-5           Analytical Method: SM 2320B         Pace Analytical Services - Kansas City         1         11/21/23 20:50         1         11/21/23 20:50           Analytical Method: SM 2540C</td></t<></td></td<>	Results         Units         PQL         MDL         DF         Prepared         Analyzed           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         11/28/23 12:31         11/29/23 10:15           57.9J         ug/L         100         6.4         1         11/28/23 12:31         11/29/23 10:15           136000         ug/L         200         26.9         1         11/28/23 12:31         11/29/23 10:15           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15           26600         ug/L         50.0         20.1         1         11/28/23 12:31         11/29/23 10:15           633         ug/L         500         69.7         1         11/28/23 12:31         11/29/23 10:15           5970         ug/L         500         115         1         11/28/23 12:31         11/29/23 10:15           Analytical Method: SM 2320B         Pace Analytical Services - Kansas City         1         11/21/23 20:50         11/21/23 20:50           Analytical Method: SM 2540C         Pace Analytical Services - Kansas City         1         11/17/23 14:43           Analytical Method: EPA 300.0         Pace Analytical Services - Kansas City <t< td=""><td>Results         Units         PQL         MDL         DF         Prepared         Analyzed         CAS No.           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         11/28/23 12:31         11/29/23 10:15         7440-42-8           136000         ug/L         200         26.9         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7439-89-6           26600         ug/L         50.0         20.1         1         11/28/23 12:31         11/29/23 10:15         7439-95-4           489         ug/L         5.0         0.39         1         11/28/23 12:31         11/29/23 10:15         7440-09-7           5970         ug/L         500         115         1         11/28/23 12:31         11/29/23 10:15         7440-23-5           Analytical Method: SM 2320B         Pace Analytical Services - Kansas City         1         11/21/23 20:50         1         11/21/23 20:50           Analytical Method: SM 2540C</td></t<>	Results         Units         PQL         MDL         DF         Prepared         Analyzed         CAS No.           Analytical Method: EPA 200.7         Preparation Method: EPA 200.7         Pace Analytical Services - Kansas City         11/28/23 12:31         11/29/23 10:15         7440-42-8           136000         ug/L         200         26.9         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7440-70-2           57.0         ug/L         50.0         9.1         1         11/28/23 12:31         11/29/23 10:15         7439-89-6           26600         ug/L         50.0         20.1         1         11/28/23 12:31         11/29/23 10:15         7439-95-4           489         ug/L         5.0         0.39         1         11/28/23 12:31         11/29/23 10:15         7440-09-7           5970         ug/L         500         115         1         11/28/23 12:31         11/29/23 10:15         7440-23-5           Analytical Method: SM 2320B         Pace Analytical Services - Kansas City         1         11/21/23 20:50         1         11/21/23 20:50           Analytical Method: SM 2540C



## Project: AMEREN SCPC

Pace Project No.: 60442112

Sample: S-BMW-3S	Lab ID:	60441897002	Collected	d: 11/10/23	8 09:18	Received: 11/	/11/23 04:50 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical	Method: EPA 2	00.7 Prepa	ration Meth	od: EP	A 200.7			
	Pace Anal	ytical Services	- Kansas C	ity					
Boron	58.9J	ug/L	100	6.4	1	11/28/23 12:31	11/29/23 10:17	7440-42-8	
Calcium	114000	ug/L	200	26.9	1	11/28/23 12:31	11/29/23 10:17	7440-70-2	
Iron	58.0	ug/L	50.0	9.1	1	11/28/23 12:31	11/29/23 10:17	7439-89-6	
Magnesium	20700	ug/L	50.0	20.1	1	11/28/23 12:31	11/29/23 10:17	7439-95-4	
Manganese	211	ug/L	5.0	0.39	1	11/28/23 12:31	11/29/23 10:17	7439-96-5	
Potassium	717	ug/L	500	69.7	1	11/28/23 12:31	11/29/23 10:17	7440-09-7	
Sodium	5960	ug/L	500	115	1	11/28/23 12:31	11/29/23 10:17	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 23	20B						
	Pace Anal	ytical Services	- Kansas C	ity					
Alkalinity, Total as CaCO3	357	mg/L	20.0	10.5	1		11/21/23 20:55		
2540C Total Dissolved Solids	Analytical	Method: SM 25	40C						
	Pace Anal	ytical Services	- Kansas C	ity					
Total Dissolved Solids	398	mg/L	10.0	10.0	1		11/17/23 14:43		1e
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0						
	Pace Anal	ytical Services	- Kansas C	ity					
Chloride	13.4	mg/L	1.0	0.53	1		12/07/23 13:49	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		12/07/23 13:49	16984-48-8	L1
Sulfate	12.3	mg/L	1.0	0.55	1		12/07/23 13:49	14808-79-8	



Project:	AMER	EN SCPC									
Pace Project No.:	60442	112									
QC Batch:	8749	35		Analysis M	ethod:	EPA 20	).7				
QC Batch Method	: EPA	200.7		Analysis De	escription:	200.7 N	letals, Tot	al			
				Laboratory		Pace A	nalytical S	ervices - Ka	nsas City	/	
Associated Lab Sa	amples:	60441897	001, 60441897002								
METHOD BLANK	34652	41		Matrix	k: Water						
Associated Lab Sa	amples:	60441897	001, 60441897002								
				Blank	Reportir	ng					
Para	ameter		Units	Result	Limit	-	MDL	Analy	zed	Quali	ifiers
Boron			ug/L	<6.4	ļ	100	6.4	11/29/23	10:04		
Calcium			ug/L	<26.9	)	200	26.9	9 11/29/23	10:04		
Iron			ug/L	<9.1		50.0	9.1	I 11/29/23	10:04		
Magnesium			ug/L	<20.1		50.0	20.1	l 11/29/23	10:04		
Manganese			ug/L	<0.39	)	5.0	0.39	9 11/29/23	10:04		
Potassium			ug/L	<69.7	7	500	69.7	7 11/29/23	10:04		
Sodium			ug/L	<115	5	500	115	5 11/29/23	10:04		
LABORATORY CO	ONTROL	SAMPLE:	3465242								
				Spike	LCS	LCS		% Rec			
Para	ameter		Units	Conc.	Result	% Re	<b>;</b>	Limits	Quali	fiers	
Boron			ug/L	1000	935		94	85-115			
Calcium			ug/L	10000	9590		96	85-115			
Iron			ug/L	10000	9850		98	85-115			
Magnesium			ug/L	10000	9550		95	85-115			
Manganese			ug/L	1000	1000		100	85-115			
Potassium			ug/L	10000	9440		94	85-115			
Sodium			ug/L	10000	9780		98	85-115			

			MS	MSD								
	(	60442540001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Boron	ug/L	420	1000	1000	1370	1320	95	90	70-130	4	20	
Calcium	ug/L	33500	10000	10000	43100	41500	96	79	70-130	4	20	
Iron	ug/L	992	10000	10000	10800	10400	98	94	70-130	4	20	
Magnesium	ug/L	10500	10000	10000	20000	19300	95	88	70-130	4	20	
Manganese	ug/L	395	1000	1000	1360	1310	96	92	70-130	3	20	
Potassium	ug/L	18900	10000	10000	30300	29400	115	105	70-130	3	20	
Sodium	ug/L	1780000	10000	10000	1810000	1730000	259	-572	70-130	5	20	E,M1
MATRIX SPIKE SAMPLE:	2	465245										

	3403243	60442296002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Boron	ug/L	290	1000	1240	95	70-130	
Calcium	ug/L	104000	10000	112000	83	70-130	

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

# REPORT OF LABORATORY ANALYSIS



Project: AMEREN SCPC Pace Project No.: 60442112

MATRIX SPIKE SAMPLE:	3465245						
		60442296002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Iron	ug/L	270	10000	10100	98	70-130	
Magnesium	ug/L	52900	10000	62400	95	70-130	
Manganese	ug/L	73.5	1000	1070	100	70-130	
Potassium	ug/L	86000	10000	94800	88	70-130	
Sodium	ug/L	212000	10000	219000	67	70-130 M <sup>2</sup>	1

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.



#### **QUALITY CONTROL DATA**

Project:	AMEREN SCPC											
Pace Project No.:	60442112											
QC Batch:	875218		Anal	ysis Metho	d. E	EPA 200.7						
QC Batch Method:	EPA 200.7			ysis Descri		200.7 Metal	s Total					
	217(200)			pratory:			-	ices - Kansa	s Citv			
Associated Lab Sar	nples: 604421120	001, 6044211200		•		-			only			
METHOD BLANK:	3466217			Matrix: W	ater							
Associated Lab Sar	nples: 604421120	001, 6044211200	2, 6044211	2003, 6044	12112004, 6	044211200	5					
			Bla	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MDI	-	Analyzed	Qı	ualifiers		
Boron		ug/L		<6.4	100	 D	6.4	12/06/23 09:	53			
Calcium		ug/L		<26.9	200	C	26.9	12/06/23 09:	53			
Iron		ug/L		<9.1	50.0	C	9.1	12/06/23 09:	53			
Magnesium		ug/L		<20.1	50.0			12/06/23 09:				
Manganese		ug/L		<0.39	5.0			12/06/23 09:				
Potassium		ug/L		<69.7	500			12/06/23 09:				
Sodium		ug/L		<115	500	)	115	12/06/23 09:	53			
LABORATORY CO	NTROL SAMPLE:	3466218										
_			Spike	LC		LCS		Rec				
Parar	neter	Units	Conc.	Res	sult	% Rec	Li	mits (	Qualifiers	_		
Boron		ug/L	100	00	945	94		85-115				
Calcium		ug/L	1000		9670	97		85-115				
Iron		ug/L	1000		9780	98		85-115				
Magnesium		ug/L	1000		9480	95		85-115				
Manganese Potassium		ug/L ug/L	100 1000		1020 9300	102 93		85-115 85-115				
Sodium		ug/L	1000		9990 9990	100		85-115				
MATRIX SPIKE & N		PLICATE: 3466	219		3466220							
			MS	MSD	0100220							
		60442105001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	ug/L	93.7J	1000	1000	1040	1040	9	5 94	70-130	0	20	
Calcium	ug/L	117000	10000	10000	120000	122000		0 45	70-130	1		M1
Iron	ug/L	<9.1	10000	10000	9720	9850	9	7 98	70-130	1	20	
Magnesium	ug/L	30400	10000	10000	38400	38700	8	0 83	70-130	1	20	
Manganese	ug/L	695	1000	1000	1660	1690		6 99		2		
Potassium	ug/L	5880	10000	10000	15300	15400		5 95		0		
Sodium	ug/L	4970	10000	10000	14900	15000	9	9 100	70-130	1	20	
MATRIX SPIKE & M	IATRIX SPIKE DUP	PLICATE: 3466	221		3466222							
			MS	MSD								
Paramete	r Units	60442112001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	165	1000	1000	1160	1110	9	9 94	70-130	5	20	

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**



Project: AMEREN SCPC Pace Project No.: 60442112

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3466	221		3466222							
Parameter	6 Units	0442112001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	157000	10000	10000	165000	155000	81	-24	70-130	7	20	M1
Iron	ug/L	11.0J	10000	10000	10200	9820	102	98	70-130	4	20	
Magnesium	ug/L	36400	10000	10000	46200	43200	99	68	70-130	7	20	M1
Manganese	ug/L	355	1000	1000	1400	1340	104	98	70-130	5	20	
Potassium	ug/L	10700	10000	10000	20900	19900	103	93	70-130	5	20	
Sodium	ug/L	43300	10000	10000	53600	50600	103	72	70-130	6	20	

MATRIX SPIKE SAMPLE:	3466223						
		60442112004	Spike	MS	MS	% Rec	0
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Boron	ug/L	82.0J	1000	1050	97	70-130	
Calcium	ug/L	133000	10000	137000	47	70-130	M1
Iron	ug/L	278	10000	10400	101	70-130	
Magnesium	ug/L	27800	10000	36500	87	70-130	
Manganese	ug/L	484	1000	1510	102	70-130	
Potassium	ug/L	6670	10000	16500	98	70-130	
Sodium	ug/L	4300	10000	14600	103	70-130	

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



QC Batch: 875578		Analysis Meth	nod <sup>.</sup> Ef	PA 200.7				
QC Batch Method: EPA 200.7		Analysis Desc		200.7 Metals, Total				
		Laboratory:	•	,	vices - Kansas City	/		
Associated Lab Samples: 6044	2112006, 60442112007	7, 60442112008		·				
METHOD BLANK: 3467639		Matrix:	Water					
Associated Lab Samples: 6044	2112006, 60442112007	7, 60442112008						
		Blank	Reporting					
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers		
Boron	ug/L	<6.4	100	6.4	12/06/23 09:29			
Calcium	ug/L	<26.9	200	26.9	12/06/23 09:29			
Iron	ug/L	<9.1	50.0	9.1	12/06/23 09:29			
Marian a stress	ug/L	<20.1	50.0	20.1	12/06/23 09:29			
Magnesium	ug/L	< 0.39	5.0	0.39	12/06/23 09:29			
Magnesium Manganese	ug/L							
0	ug/L	<69.7	500	69.7	12/06/23 09:29			

#### LABORATORY CONTROL SAMPLE: 3467640

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	971	97	85-115	
Calcium	ug/L	10000	9990	100	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	9890	99	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	9470	95	85-115	
Sodium	ug/L	10000	10200	102	85-115	

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3467	641		3467642							
			MS	MSD								
	6	0442112007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	ug/L	75.9J	1000	1000	1060	1030	99	96	70-130	3	20	
Calcium	ug/L	120000	10000	10000	163000	155000	431	353	70-130	5	20	M1
Iron	ug/L	243	10000	10000	9930	9640	97	94	70-130	3	20	
Magnesium	ug/L	25100	10000	10000	57800	55200	327	302	70-130	5	20	M1
Manganese	ug/L	433	1000	1000	2070	2000	163	157	70-130	3	20	M1
Potassium	ug/L	6150	10000	10000	16500	16000	103	99	70-130	3	20	
Sodium	ug/L	3840	10000	10000	19000	18400	151	146	70-130	3	20	M1

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#### **REPORT OF LABORATORY ANALYSIS**



Project: AM	EREN SCPC								
Pace Project No.: 604	42112								
QC Batch: 87	74278		Analysis Me	ethod:	SM 2320B				
QC Batch Method: S	M 2320B		Analysis De	escription:	2320B Alkalii	nity			
			Laboratory:		Pace Analytic	cal Ser	vices - Kar	nsas C	ity
Associated Lab Samples	s: 60441897	7001, 60441897002							
METHOD BLANK: 346	2786		Matrix	: Water					
Associated Lab Samples	60441897	7001, 60441897002							
_			Blank	Reporting					
Paramete	ſ	Units	Result	Limit	MDL		Analyz	zed	Qualifiers
Alkalinity, Total as CaCC	03	mg/L	<10.5	20	.0	10.5	11/21/23	19:16	
LABORATORY CONTR	OL SAMPLE:	3462787							
			Spike	LCS	LCS		Rec		
Parameter	ſ	Units	Conc.	Result	% Rec	L	imits	Qua	alifiers
Alkalinity, Total as CaCC	03	mg/L	500	481	96		90-110		
SAMPLE DUPLICATE:	3462788								
		11.5	60441589019	Dup			Max		0 11
Paramete		Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as CaCC	03	mg/L	475	5 48	33	2		10	
SAMPLE DUPLICATE:	3462789								
_			60441862007	Dup	<b>B</b>		Max		0
Paramete		Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as CaCC	03	mg/L	232	24	40	3		10	

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



Project:	AMER	EN SCPC								
Pace Project No.:	60442	112								
QC Batch:	8745	37		Analysis Me	ethod:	SM 2320B				
QC Batch Method:		320B		Analysis De		2320B Alkalin	ity			
				Laboratory:		Pace Analytic	-	vices - Kai	nsas C	ity
Associated Lab Sar	mples:	60442112 60442112		2, 60442112003,	60442112004,	60442112005	, 6044	2112006, 0	60442 <i>′</i>	112007,
METHOD BLANK:	34638	35		Matrix	: Water					
Associated Lab Sar	nples:	60442112 60442112		2, 60442112003, (		60442112005	, 6044	2112006, (	60442 <i>′</i>	112007,
_				Blank	Reporting					0
Parar	neter		Units	Result	Limit	MDL		Analyz	zed	Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	<10.5	20	.0	10.5	11/22/23	19:52	
LABORATORY CO	NTROL	SAMPLE:	3463836					_		
Parar	notor		Units	Spike Conc.	LCS Result	LCS % Rec		5 Rec imits	<b>O</b>	alifiers
							L			
Alkalinity, Total as C	CaCO3		mg/L	500	487	97		90-110		
SAMPLE DUPLICA	TE: 34	163837								
Parar	neter		Units	60442101001 Result	Dup Result	RPD		Max RPD		Qualifiers
Alkalinity, Total as C			mg/L	576			0		10	
	TE									
SAMPLE DUPLICA	IE: 34	163838		60442105001	Dup			Max		
Parar	neter		Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	363	30	 53	0		10	
SAMPLE DUPLICA	TE: 34	163839								
Parar	neter		Units	60442112001 Result	Dup Result	RPD		Max RPD		Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	428	43	32	1		10	
SAMPLE DUPLICA	TE: 34	163840								
-				60441897015	Dup			Max		Qualifian
Parar			Units	Result	Result	RPD		RPD		Qualifiers
Alkalinity, Total as C	CaCO3		mg/L	470	) 47	71	0		10	

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

#### **REPORT OF LABORATORY ANALYSIS**



- <b>,</b>	EREN SCPC 42112							
	73904		Analysis Me	ethod:	SM 2540C			
QC Batch Method: SI	M 2540C		Analysis De	escription:	2540C Total D	Dissolved So	ids	
			Laboratory:		Pace Analytic	al Services -	Kansas C	City
Associated Lab Samples	s: 60441897	001, 60441897002						
METHOD BLANK: 346	61231		Matrix	: Water				
Associated Lab Samples	60441897	001, 60441897002						
			Blank	Reporting				
Parameter	r	Units	Result	Limit	MDL	An	alyzed	Qualifiers
Total Dissolved Solids		mg/L	<5.0	) {	5.0	5.0 11/17	/23 14:43	
		0.404000						
LABORATORY CONTRO	JL SAMPLE:	3461232	Spike	LCS	LCS	% Rec		
Parameter	r	Units	Conc.	Result	% Rec	Limits	Qu	alifiers
Total Dissolved Solids		mg/L	1000	998	100	80-1	20	
SAMPLE DUPLICATE:	3461233							
_			60441897001	Dup			ax	
Parameter	r	Units	Result	Result	RPD	RI	PD	Qualifiers
Total Dissolved Solids		mg/L	475	5 4	62	3	10	
SAMPLE DUPLICATE:	3461753							
			60441898004	Dup			ax	
Parameter	r	Units	Result	Result	RPD	R	PD	Qualifiers
Total Dissolved Solids		mg/L	345	3	66	6	10	

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



Project:	AMER	EN SCPC								
Pace Project No.:	60442 <sup>-</sup>	112								
QC Batch:	8740	90		Analysis Me	ethod:	SM 2540C				
QC Batch Method:	SM 2	540C		Analysis De	escription:	2540C Total	Dissolv	ed Solids		
				Laboratory:		Pace Analyti	cal Ser	vices - Kar	nsas C	ity
Associated Lab San	nples:	604421120 604421120	001, 60442112002, 008	, 60442112003,	60442112004	, 60442112005	5, 6044	2112006, 6	60442 <i>°</i>	112007,
METHOD BLANK:	346207	73		Matrix	: Water					
Associated Lab San	nples:	604421120 604421120	001, 60442112002, 008				5, 6044	2112006, 6	60442 <i>′</i>	112007,
_				Blank	Reporting					
Paran	neter		Units	Result	Limit	MDL		Analyz	ed	Qualifiers
Total Dissolved Soli	ds		mg/L	<5.0	)	5.0	5.0	11/20/23	13:12	
LABORATORY COM	NTROL	SAMPLE:	3462074							
Paran	neter		Units	Spike Conc.	LCS Result	LCS % Rec		Rec imits	Qua	alifiers
Total Dissolved Soli	ds		mg/L	1000	986	99		80-120		
SAMPLE DUPLICA	TE: 34	62244								
_				60442101001	Dup			Max		
Paran	neter		Units	Result	Result	RPD		RPD		Qualifiers
Total Dissolved Soli	ds		mg/L	751	7	727	3		10	
SAMPLE DUPLICA	TE: 34	62245								
Paran	neter		Units	60442105001 Result	Dup Result	RPD		Max RPD		Qualifiers
Total Dissolved Soli	ds		mg/L	451		471	4		10	
SAMPLE DUPLICA	TE: 34	62246								
Deve			l la ita	60442112001	Dup	000		Max		Qualifiana
Paran	neter		Units	Result	Result	RPD		RPD		Qualifiers
Total Dissolved Soli			mg/L	672		 643			10	

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

#### **REPORT OF LABORATORY ANALYSIS**



	N SCPC											
Pace Project No.: 6044211	12											
QC Batch: 87588	5		Analy	sis Meth	od:	EPA 300.0						
QC Batch Method: EPA 30	00.0		Analy	sis Desc	ription:	300.0 IC Ar	ions					
			Laboi	ratory:		Pace Analy	tical Se	rvices - Kans	as City			
Associated Lab Samples:	604418970	01, 60441897002	2									
METHOD BLANK: 346901	9			Matrix: N	Vater							
Associated Lab Samples:	604418970	01, 60441897002	2									
Parameter		Units	Blan Resu		Reporting Limit	MD	L	Analyze	d Qı	ualifiers	i	
Chloride		mg/L		<0.53		1.0	0.53	12/07/23 13	3.03			
Fluoride		mg/L		<0.12		20	0.12	12/07/23 1				
Sulfate		mg/L		<0.55		1.0	0.55	12/07/23 13				
METHOD BLANK: 3471852	2			Matrix: V	Vater							
		01, 60441897002										
			Blan	ık	Reporting							
Parameter		Units	Resu	ult	Limit	MD	L	Analyze	d Qı	ualifiers		
Chloride		mg/L		<0.53	1	1.0	0.53	12/08/23 2	1:31			
Fluoride		mg/L		<0.12	0.	20	0.12	12/08/23 2	1:31			
Sulfate		mg/L		<0.55	1	1.0	0.55	12/08/23 2	1:31			
LABORATORY CONTROL S	AMPLE:	3469020										
	AMPLE:		Spike		CS	LCS		% Rec	Qualifiara			
Parameter	AMPLE:	Units	Conc.	Re	esult	% Rec	I	_imits	Qualifiers			
Parameter	AMPLE:	Units mg/L	Conc.		esult 4.5	% Rec 9	0	Limits 90-110	Qualifiers			
Parameter Chloride Fluoride	AMPLE:	Units mg/L mg/L	Conc. 2.	Re 5 5	esult 4.5 2.6	% Rec 9 10	l 0 3	Limits 90-110 90-110	Qualifiers			
Parameter Chloride Fluoride	AMPLE:	Units mg/L	Conc. 2.		esult 4.5	% Rec 9	l 0 3	Limits 90-110	Qualifiers			
Parameter Chloride Fluoride Sulfate		Units mg/L mg/L	2.	Re 5 5 5 5	4.5 2.6 4.5	% Rec 9 10 9	I 0 3 1	Limits 90-110 90-110 90-110	Qualifiers	_		
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S		Units mg/L mg/L mg/L 3471853	Conc. 2. Spike	Re 5 5 5 L	esult 4.5 2.6 4.5 CS	% Rec 9 10 9	l 0 3 1 %	Limits 90-110 90-110 90-110 % Rec		_		
Parameter Chloride Fluoride Sulfate		Units mg/L mg/L mg/L 3471853 Units	Conc.		2.6 2.6 4.5 CS 2.8 2.6 4.5	% Rec 9 10 9 5 9 8 8 8 8 8 8 8 8 8	I 0 3 1  1	Limits 90-110 90-110 90-110 90-110 % Rec Limits	Qualifiers	_		
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride		Units mg/L mg/L mg/L 3471853 Units mg/L	Spike Conc.		4.5           2.6           4.5	% Rec 9 10 9 10 9 10 9	I 3 1  7	Limits 90-110 90-110 90-110 90-110 % Rec Limits 90-110	Qualifiers			
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride		Units mg/L mg/L mg/L 3471853 Units mg/L mg/L	Spike Conc.	 5 5 5 5 5    5 5 5	4.5           2.6           4.5           2.6           4.5	% Rec 9 10 9 10 9 10 9 11	I 3 1  7  3	Limits 90-110 90-110 90-110 % Rec Limits 90-110 90-110	Qualifiers	_		
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride		Units mg/L mg/L mg/L 3471853 Units mg/L	Spike Conc.		4.5           2.6           4.5	% Rec 9 10 9 10 9 10 9	I 3 1  7  3	Limits 90-110 90-110 90-110 90-110 % Rec Limits 90-110	Qualifiers			
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate	AMPLE:	Units mg/L mg/L g471853 Units mg/L mg/L mg/L	Conc. 2. Spike Conc. 2.		4.5           2.6           4.5           2.6           4.5	% Rec 9 10 9 10 9 10 9 11 9	I 3 1  7  3	Limits 90-110 90-110 90-110 % Rec Limits 90-110 90-110 90-110	Qualifiers			
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate	AMPLE:	Units mg/L mg/L 3471853 Units mg/L mg/L mg/L mg/L	Conc. 2. Spike Conc. 2. 21 MS	 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ASUIT 4.5 2.6 4.5 CS ASUIT 4.9 2.8 4.8 346902	% Rec 9 10 9 10 9 11 9 22	I 3 1 7 7 7 7	Limits	Qualifiers 1			
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX S	AMPLE:	Units mg/L mg/L 3471853 Units mg/L mg/L mg/L mg/L states 0441898004	Conc. 2. Spike Conc. 2. 21 MS Spike	Re 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ASUIT 4.5 2.6 4.5 CS A.9 2.8 4.9 2.8 4.8 346902 MS	% Rec 9 10 9 10 9 11 9 22 22 MSD	1 3 1 7 7 7 7 MS	Limits	Qualifiers 1 % Rec		Max	Qual
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX S Parameter	SAMPLE:	Units mg/L mg/L mg/L 3471853 Units mg/L mg/L mg/L clCATE: 34690 60441898004 Result	Conc. 2. Spike Conc. 2. 21 MS Spike Conc.	Re 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	A.5 2.6 4.5 CS esult 4.9 2.8 4.8 346902 MS Result	% Rec 9 10 9 10 9 11 9 11 9 22 22 MSD Result	1 3 1 7 7 3 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Limits 90-110 90-110 90-110 % Rec Limits 90-110 90-110 90-110 4 90-110 5 0 MSD c % Rec	Qualifiers 1 % Rec Limits		RPD	Qual
Parameter Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX S Parameter Chloride	SAMPLE: SPIKE DUPL	Units mg/L mg/L mg/L 3471853 Units mg/L mg/L mg/L clCATE: 34690 60441898004 Result 23.8	Conc. 2. Spike Conc. 2. 21 MS Spike Conc. 25	Re 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	A.5 2.6 4.5 CS esult 4.9 2.8 4.8 346902 MS Result 48.4	% Rec 9 10 9 10 9 10 9 11 9 22 22 MSD Result 4 48.2		Limits 90-110 90-110 90-110 % Rec Limits 90-110 90-110 90-110 C MSD c % Rec 90-110 90-10	Qualifiers 1 % Rec Limits 8 80-120	0	RPD 15	H1
Chloride Fluoride Sulfate LABORATORY CONTROL S Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX S	SAMPLE:	Units mg/L mg/L mg/L 3471853 Units mg/L mg/L mg/L clCATE: 34690 60441898004 Result	Conc. 2. Spike Conc. 2. 21 MS Spike Conc.	Re 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	A.5 2.6 4.5 CS asult 4.9 2.8 4.8 346902 MS Result 48.4 3.1	% Rec 9 10 9 10 9 11 9 11 9 22 22 MSD Result 4 48.2 1 3.2	l 3 1 7 7 7 7 7 8 7 7 8 7 7 7 7 7 7 7 7 7 7	Limits 90-110 90-110 90-110 % Rec Limits 90-110 90-110 90-110 4 90-110 5 0 MSD c % Rec	Qualifiers 1 % Rec Limits 8 80-120 2 80-120	0	RPD 15 15	H1

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**



Project: AMEREN SCPC Pace Project No.: 60442112

SAMPLE DUPLICATE: 3469023						
		60441898004	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Chloride	mg/L	23.8	23.0	3		15 H1
Fluoride	mg/L	0.15J	0.15J			15
Sulfate	mg/L	1.9	1.7	9		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**



QC Batch:	876463		Analyzia	Mathad	ED	A 300.0				
QC Batch Method:		0	Analysis				20			
QC Batch Method:	EPA 300	).0	Laborato	Description:		).0 IC Anio		winne Kon		
Associated Lab Sam	onles: 61	0442112001, 60442112002		5				vices - Kan		
ASSOCIATED Lab Gain		0442112008	., 0044211200	0, 004421120	, 004	-2112000	. 00-1-1	2112000, 0	0112112	
METHOD BLANK:	3471507		Ма	trix: Water						
Associated Lab Sam		0442112001, 60442112002 0442112008	2, 6044211200	3, 604421120	04, 604	42112005,	6044	2112006, 6	0442112	2007,
			Blank	Repor						
Param	neter	Units	Result	Lim	t	MDL		Analyz	ed	Qualifiers
Chloride		mg/L	<0	.53	1.0		0.53	12/11/23 2	21:27	
Fluoride		mg/L	-	.12	0.20		0.12	12/11/23 2		
Sulfate		mg/L	<0	.55	1.0		0.55	12/11/23 2	21:27	
METHOD BLANK:	3474186		Ma	trix: Water						
Associated Lab Sam	ples: 6	0442112001, 60442112002			04, 604	42112005	6044	2112006, 6	0442112	2007,
	6	0442112008	Blank	Donor	ina					
Param	neter	Units	Result	Repor Lim		MDL		Analyz	ed	Qualifiers
Chloride		mg/L	<0	.53	1.0		0.53	12/13/23	13:43	
Fluoride		mg/L	<0	.12	0.20		0.12	12/13/23		
Sulfate		mg/L	<0	.55	1.0		0.55	12/13/23	13:43	
			Ma	trix: Water						
METHOD BLANK: Associated Lab Sam	ples: 6	0442112001, 60442112002	2, 6044211200	3, 604421120	04, 604	42112005	6044	2112006, 6	0442112	2007,
-	ples: 6	0442112001, 60442112002 0442112008				42112005,	6044	2112006, 6	0442112	2007,
-	nples: 60 60		2, 6044211200 Blank Result	3, 604421120 Repor Lim	ting	42112005, MDL	6044	2112006, 6 Analyzi		
Associated Lab Sam Param	nples: 60 60	0442112008 Units	Blank Result	Repor	ting	MDL		Analyz	ed	
Associated Lab Sarr Param Chloride	nples: 60 60	0442112008 Units mg/L	Blank Result <0	Repor Lim	ting t 1.0	MDL	0.53	Analyz 12/12/23 (	ed 08:56	
Associated Lab Sam Param	nples: 60 60	0442112008 Units	Blank Result <0 <0	Repor	ting	MDL		Analyz	ed 08:56 08:56	
Associated Lab Sam Param Chloride Fluoride Sulfate	nples: 66 60 neter	0442112008 Units mg/L mg/L mg/L	Blank Result <0 <0	Repor Lim .53 .12	ting t 1.0 0.20	MDL	0.53	Analyz 12/12/23 ( 12/12/23 (	ed 08:56 08:56	2007, Qualifiers
Associated Lab Sam Param Chloride Fluoride Sulfate	nples: 66 60 neter	0442112008 Units mg/L mg/L mg/L	Blank Result <0 <0 <0	Repor Lim .53 .12 .55	ting t 1.0 0.20 1.0	MDL	0.53 0.12 0.55	Analyz 12/12/23 ( 12/12/23 ( 12/12/23 (	ed 08:56 08:56	
Associated Lab Sam Param Chloride Fluoride	nples: 66 60 neter ITROL SA	0442112008 Units mg/L mg/L mg/L	Blank Result <0 <0	Repor Lim .53 .12	ting t 1.0 0.20 1.0	MDL	0.53 0.12 0.55	Analyz 12/12/23 ( 12/12/23 (	ed 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Fluoride Sulfate LABORATORY CON Param	nples: 66 60 neter ITROL SA	0442112008 Units mg/L mg/L mg/L MPLE: 3471508	Blank Result <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS	ting t 1.0 0.20 1.0	MDL	0.53 0.12 0.55	Analyza 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec	ed 08:56 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Fluoride Sulfate LABORATORY CON Param Chloride Fluoride	nples: 66 60 neter ITROL SA	0442112008 Units mg/L mg/L mg/L MPLE: 3471508 Units	Blank Result <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS Result 5. 2.	$\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$	MDL _CS _Rec _100 _107	0.53 0.12 0.55	Analyzo 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec .imits	ed 08:56 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Fluoride Sulfate LABORATORY CON	nples: 66 60 neter ITROL SA	0442112008 Units mg/L mg/L mg/L MPLE: 3471508 Units mg/L	Blank Result <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS Result 5.	$\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$	MDL CS Rec 100	0.53 0.12 0.55	Analyza 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec .imits 90-110	ed 08:56 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Fluoride Sulfate LABORATORY CON Param Chloride Fluoride	nples: 66 60 neter ITROL SA neter	0442112008 Units mg/L mg/L mg/L MPLE: 3471508 Units mg/L mg/L mg/L mg/L	Blank Result <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS Result 5. 2.	$\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$ - $\frac{1}{1.0}$	MDL _CS _Rec _100 _107	0.53 0.12 0.55	Analyz 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec imits 90-110 90-110	ed 08:56 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Sulfate LABORATORY CON Param Chloride Fluoride Sulfate	nples: 66 60 neter ITROL SA neter	0442112008 Units mg/L mg/L mg/L MPLE: 3471508 Units mg/L mg/L mg/L mg/L	Blank Result <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS Result 5. 2.	ting t 1.0 0.20 1.0	MDL _CS _Rec _100 _107	0.53 0.12 0.55 % L	Analyz 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec imits 90-110 90-110	ed 08:56 08:56 08:56	Qualifiers
Associated Lab Sam Param Chloride Sulfate LABORATORY CON Param Chloride Fluoride Sulfate	ITROL SA	0442112008 Units mg/L mg/L mg/L MPLE: 3471508 Units mg/L mg/L mg/L mg/L	Blank Result <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Repor Lim .53 .12 .55 LCS Result 5. 2. 4.	ting t 0.20 1.0	MDL -CS 9 Rec 100 107 96	0.53 0.12 0.55 % L	Analyz 12/12/23 ( 12/12/23 ( 12/12/23 ( 6 Rec .imits 90-110 90-110	ed 08:56 08:56 08:56	Qualifiers

#### **REPORT OF LABORATORY ANALYSIS**



# Project: AMEREN SCPC

Pace Project No.: 60442112

LABORATORY CONTROL SA	MPLE:	3474187	0.11		•	1.00	04 D					
Parameter		Units	Spike Conc.	LC Res		LCS % Rec	% Re Limit		Qualifiers			
Fluoride		mg/L	2.	.5	2.8	11	3 9	90-110 L1		-		
Sulfate		mg/L		5	4.9	9		90-110				
LABORATORY CONTROL SA	MPLE:	3474190										
Parameter		Units	Spike Conc.	LC Res		LCS % Rec	% Re Limit		Qualifiers			
Chloride		mg/L		5	5.0	10	1 9	90-110		_		
Fluoride		mg/L	2.	.5	2.5	9	9 9	90-110				
Sulfate		mg/L		5	5.5	10	9 9	90-110				
MATRIX SPIKE & MATRIX SP	IKE DUPI	LICATE: 3471	509		3471510							
			MS	MSD								
Parameter	Units	60442093002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	5.8	5	5	11.1	11.1	106	107	80-120	0	15	
	mg/L	<0.12	2.5	2.5	2.8	2.8	111	113	80-120	2	15	
Fluoride	mg/ L		50	50	78.7	81.7	100	106	80-120	4	15	
Fluoride Sulfate	mg/L	28.8	50	50	10.1							
	mg/L			MSD Spike Conc.	3471513 MS Result		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate MATRIX SPIKE & MATRIX SP Parameter	mg/L IKE DUPI	LICATE: 3471 60442105001 Result	512 MS Spike Conc.	MSD Spike Conc.	3471513 MS Result	MSD Result	MS % Rec	MSD % Rec	Limits		RPD	
Sulfate MATRIX SPIKE & MATRIX SP	mg/L	LICATE: 3471 60442105001	512 MS Spike	MSD Spike	3471513 MS	MSD	MS	MSD	Limits 80-120	RPD 1 1		H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride	IKE DUPI	LICATE: 3471 60442105001 Result 2.0	512 MS Spike Conc. 5	MSD Spike Conc. 5	3471513 MS Result 6.0	MSD Result 6.1	MS % Rec 81	MSD % Rec 82	Limits 80-120	1	RPD 15 15	H1 H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate	mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3	512 MS Spike Conc. 5 2.5 50	MSD Spike Conc. 5 2.5	3471513 MS Result 6.0 2.8	MSD Result 6.1 2.9 136	MS % Rec 81 113	MSD % Rec 82 114	Limits 80-120 80-120	1	RPD 15 15	H1 H1 H1,M1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate	mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3	512 MS Spike Conc. 5 2.5 50	MSD Spike Conc. 5 2.5	3471513 MS Result 6.0 2.8 97.9	MSD Result 6.1 2.9 136	MS % Rec 81 113	MSD % Rec 82 114	Limits 80-120 80-120	1	RPD 15 15	H1 H1 H1,M1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride	mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3	512 MS Spike Conc. 5 2.5 50 515	MSD Spike Conc. 5 2.5 50 MSD Spike	3471513 MS Result 6.0 2.8 97.9	MSD Result 6.1 2.9 136	MS % Rec 81 113 107 MS	MSD % Rec 82 114 183 MSD	Limits 80-120 80-120	1 1 33	RPD 15 15 15	H1 H1 H1,M1, R1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate	mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471	512 MS Spike Conc. 5 2.5 50 515 MS	MSD Spike Conc. 5 2.5 50 MSD	3471513 MS Result 6.0 2.8 97.9 3471516	MSD Result 6.1 2.9 136	MS % Rec 81 113 107	MSD % Rec 82 114 183	Limits 80-120 80-120 80-120	1	RPD 15 15 15	H1 H1 H1,M1,
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride	Mg/L IKE DUPI Units Mg/L Mg/L Mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471 60442112001	512 MS Spike Conc. 5 2.5 50 515 MS Spike Conc. 50	MSD Spike Conc. 5 2.5 50 MSD Spike Conc. 50	3471513 MS Result 6.0 2.8 97.9 3471516 MS	MSD Result 6.1 2.9 136 MSD Result 122	MS % Rec 81 113 107 MS	MSD % Rec 82 114 183 MSD	Limits 80-120 80-120 80-120 % Rec Limits 80-120	1 1 33	RPD 15 15 15 15 Max RPD 15	H1 H1 H1,M1, R1 Qual H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride	IKE DUPI Units mg/L mg/L IKE DUPI IKE DUPI Units mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471 60442112001 Result 74.8 <0.12	512 MS Spike Conc. 5 2.5 50 515 MS Spike Conc. 50 2.5	MSD Spike Conc. 5 2.5 50 MSD Spike Conc. 50 2.5	3471513 MS Result 6.0 2.8 97.9 3471516 MS Result 120 2.8	MSD Result 6.1 2.9 136 MSD Result 122 2.7	MS % Rec 81 113 107 MS % Rec 91 112	MSD % Rec 82 114 183 MSD % Rec 95 107	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 1 33 RPD 2 5	RPD 15 15 15 15 15 Max RPD 15 15	H1 H1 H1,M1, R1 Qual H1 H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride	IKE DUPI Units mg/L mg/L IKE DUPI	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471 60442112001 Result 74.8	512 MS Spike Conc. 5 2.5 50 515 MS Spike Conc. 50	MSD Spike Conc. 5 2.5 50 MSD Spike Conc. 50	3471513 MS Result 6.0 2.8 97.9 3471516 MS Result 120	MSD Result 6.1 2.9 136 MSD Result 122	MS % Rec 81 113 107 MS % Rec 91	MSD % Rec 82 114 183 MSD % Rec 95	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120	1 1 33 RPD 2	RPD 15 15 15 15 15 Max RPD 15 15	H1 H1 H1,M1, R1 Qual H1 H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate MATRIX SPIKE & MATRIX SP Parameter	IKE DUPI Units mg/L mg/L mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471 60442112001 Result 74.8 <0.12	512 MS Spike Conc. 5 2.5 50 515 MS Spike Conc. 50 2.5 50	MSD Spike Conc. 5 2.5 50 MSD Spike Conc. 50 2.5 50	3471513 MS Result 6.0 2.8 97.9 3471516 MS Result 120 2.8 97.0	MSD Result 6.1 2.9 136 MSD Result 122 2.7	MS % Rec 81 113 107 MS % Rec 91 112	MSD % Rec 82 114 183 MSD % Rec 95 107 99	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 1 33 RPD 2 5	RPD 15 15 15 15 15 Max RPD 15 15	H1 H1 H1,M1, R1 Qual H1 H1
Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Sulfate MATRIX SPIKE & MATRIX SP Parameter Chloride Fluoride Sulfate	IKE DUPI Units mg/L mg/L mg/L IKE DUPI Units mg/L mg/L mg/L	LICATE: 3471 60442105001 Result 2.0 <0.12 44.3 LICATE: 3471 60442112001 Result 74.8 <0.12	512 MS Spike Conc. 5 2.5 50 515 MS Spike Conc. 50 2.5	MSD Spike Conc. 5 2.5 50 MSD Spike Conc. 50 2.5 50 93002	3471513 MS Result 6.0 2.8 97.9 3471516 MS Result 120 2.8	MSD Result 6.1 2.9 136 MSD Result 122 2.7	MS % Rec 81 113 107 MS % Rec 91 112 89	MSD % Rec 82 114 183 MSD % Rec 95 107	Limits 80-120 80-120 80-120 % Rec Limits 80-120 80-120 80-120	1 1 33 RPD 2 5 5	RPD 15 15 15 15 15 Max RPD 15 15	H1 H1 H1,M1, R1 Qual H1 H1

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**



Project: AMEREN SCPC Pace Project No.: 60442112

Demonster	11-1-	60442093002	Dup	000	Max	0
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Fluoride	mg/L	<0.12	<0.12			15
Sulfate	mg/L	28.8	27.5	5		15
SAMPLE DUPLICATE: 3471514						
		60442105001	Dup		Max	
SAMPLE DUPLICATE: 3471514 Parameter	Units	60442105001 Result	Dup Result	RPD	Max RPD	Qualifiers
	Units		•	RPD 2		Qualifiers
Parameter		Result	Result			

#### SAMPLE DUPLICATE: 3471517

		60442112001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Chloride	mg/L	74.8	71.4	5	15	6 H1
Fluoride	mg/L	<0.12	<0.12		15	5 H1
Sulfate	mg/L	52.7	47.7	10	15	5 H1

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.



#### QUALIFIERS

# Project: AMEREN SCPC

Pace Project No.: 60442112

#### 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

- 1e Achieving a constant weight was not met for this sample.
- E Analyte concentration exceeded the calibration range. The reported result is estimated.
- H1 Analysis conducted outside the EPA method holding time.
- L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	AMEREN SCPC
Pace Project No .:	60442112

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60441897001	S-BMW-1S	EPA 200.7	874935	EPA 200.7	874954
60441897002	S-BMW-3S	EPA 200.7	874935	EPA 200.7	874954
60442112001	S-UG-1A	EPA 200.7	875218	EPA 200.7	875320
60442112002	S-UG-2	EPA 200.7	875218	EPA 200.7	875320
60442112003	S-DG-1	EPA 200.7	875218	EPA 200.7	875320
60442112004	S-DG-2	EPA 200.7	875218	EPA 200.7	875320
60442112005	S-DG-3	EPA 200.7	875218	EPA 200.7	875320
60442112006	S-DG-4	EPA 200.7	875578	EPA 200.7	875643
60442112007	S-SCPC-DUP-1	EPA 200.7	875578	EPA 200.7	875643
60442112008	S-SCPC-FB-1	EPA 200.7	875578	EPA 200.7	875643
60441897001	S-BMW-1S	SM 2320B	874278		
60441897002	S-BMW-3S	SM 2320B	874278		
60442112001	S-UG-1A	SM 2320B	874537		
60442112002	S-UG-2	SM 2320B	874537		
60442112003	S-DG-1	SM 2320B	874537		
60442112004	S-DG-2	SM 2320B	874537		
60442112005	S-DG-3	SM 2320B	874537		
60442112006	S-DG-4	SM 2320B	874537		
60442112007	S-SCPC-DUP-1	SM 2320B	874537		
60442112008	S-SCPC-FB-1	SM 2320B	874537		
60441897001	S-BMW-1S	SM 2540C	873904		
60441897002	S-BMW-3S	SM 2540C	873904		
60442112001	S-UG-1A	SM 2540C	874090		
60442112002	S-UG-2	SM 2540C	874090		
60442112003	S-DG-1	SM 2540C	874090		
60442112004	S-DG-2	SM 2540C	874090		
60442112005	S-DG-3	SM 2540C	874090		
60442112006	S-DG-4	SM 2540C	874090		
60442112007	S-SCPC-DUP-1	SM 2540C	874090		
60442112008	S-SCPC-FB-1	SM 2540C	874090		
60441897001	S-BMW-1S	EPA 300.0	875885		
60441897002	S-BMW-3S	EPA 300.0	875885		
60442112001	S-UG-1A	EPA 300.0	876463		
60442112002	S-UG-2	EPA 300.0	876463		
60442112003	S-DG-1	EPA 300.0	876463		
60442112004	S-DG-2	EPA 300.0	876463		
60442112005	S-DG-3	EPA 300.0	876463		
60442112006	S-DG-4	EPA 300.0	876463		
60442112007	S-SCPC-DUP-1	EPA 300.0	876463		
60442112008	S-SCPC-FB-1	EPA 300.0	876463		

			WU#:60442112
Pace	DC#_Title: ENV-F	RM-LENE-0009_Sample	C 60442112
AHALYTICAL SERVICES	Revision: 2	Effective Date: 01/12/2022	Issued By: Lenexa
Client Name: Ro	CKSMith Geo.	eng	
Courier: FedEx D UPS		- 10 - F	ace 🗆 Xroads 🖉 Client 🗆 Other 🗆
Tracking #:		Pace Shipping Label Used?	Yes 🗆 Na 🗖
Custody Seal on Cooler/Box	Present: Yes 💋 No	□ Seals intact: Yes	No 🗆
-	e Wrap □ Bubble E <b>98 T</b>	- A	None Other 🗆
		pe of Ice: Wet Blue None	Date and initials of person
	<ul> <li>A set of the set of</li></ul>	Factor <u>~0·3</u> Corrected	examining contents:
Temperature should be above freez			1110-8 0011/15/15
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 (<7	2hr):	□Yes □No □N/A	
Rush Turn Around Time requ	ested:		
Sufficient volume:		Yes No N/A	
Correct containers used:			
Pace containers used:			
Containers intact:		Yes No N/A	
Unpreserved 5035A / TX1005/1	006 soils frozen in 48hrs	?	
Filtered volume received for dis	solved tests?		
Sample labels match COC: Date	e / time / ID / analyses	Yes No N/A	
Samples contain multiple phase	s? Matrix: $\mathcal{W}\mathcal{T}$		
Containers requiring pH preserv	일부가 프로 한 것이 같은 것을 알려야 해야 할 때 같은 것을 알 수 있는 것을 알 수 있다.		it sample IDs, volumes, lot #'s of preservative and the tertime added.
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sul (Exceptions: VOA, Micro, O&G, KS	영상 같은 것은 가슴을 가지 않는 것을 것을 물러가지 않아 봐야?	LOT#: 6719	tertime added.
Cyanide water sample checks:		V	
Lead acetate strip turns dark? (F	• /	□Yes □No	
Potassium iodide test strip turns	blue/purple? (Preserve)	Yes No	
Trip Blank present:			
Headspace in VOA vials ( >6mn	ו):	Yes No N/A	
Samples from USDA Regulated	Area: State:	□Yes □No □N/A	
Additional labels attached to 503			
Client Notification/ Resolution	Сору С	COC to Client? Y / N	Field Data Required? Y / N
Person Contacted:	D	ate/Time:	
Comments/ Resolution:			
Project Manager Review:		Date:	

104.00440440

Pace® Location Requested (City/State):							
Pace Analytical Kansas 9608 Loiret Blvd., Lenexa, KS 66219		CHAIN-OF-CUSTODY A Chain-of-Custody is a LEGAL D	USTODY A ustody is a LEGAL [	-OF-CUSTODY Analytical Request Document Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields	nent (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	LAB USE ONLY- Affix WorkorderfLogin Label Here	order/Login Label Here
		Contact/Report To:	Mark Haddock			法	
Street Address: 2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	ghts, MO 63043	Phone #.	314-974-6578				
		E-Mail:	mark,haddock(	mark, had dock@rocksmithgeo.com		Scan QR Code for instructions	tructions
		Cc E-Mailt	Jeff Ingram, jeff,	f ingram@rocksmithgeo.com			~
ect #:		Invoice To:	Mark Haddock				2117660
Project Name: AMEREN SCPC		Involce E-Mail:	mark.haddock(	mark.haddock@rocksmithgeo.com		Specify Container Size **	<ul> <li>Container Size: [1] 11, (2) 500mL, (3) 250mL, (4)</li> </ul>
Site Collection Info/Earliky ID (as anninghla).							125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other
י(שומים ביווט) ממוונא ום (אם מלחווים וווט) אינייי		Purchase Order # (if applicable):			Ide	Identify Container Preservative Type***	Preservative Types: (1) None, (2) HNO3, (3) H2504, (4) HCI (5) NADH (6, Zn Acetate (7)
		Quote #:				Analysis Requested	NaNSO4, (8) Sout, Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT	[]ET	County / State origin of sample(s):	of sample(s):	Missouri			
Data Deliverables:	Regulatory Progra	Regulatory Program (DW, RCRA, etc.) as applicable:	pplicable:			*(7.4	Jamie Church
I ] Level II [ ] Level III [ ] Level IV				And DMSID # or MMM Dormit # or SMIS		002)	
[ ] Equis	[ ] 2 Day [ ] 3	[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other	ther			slate	
[ ] Other	Date Results			Field Filtered (if applicable): [ ] Yes	0N[]	M nA	Profile / Template:
• Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oll (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V),	und Water (GW), Wa	aste Water (WW), Produ	uct (P), Soil/Solid (S	SS), Oll (OL), Wipe (WP), Tissue (TS), Bioassa		deD t	
Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk					∃\9t	008	
Customer Sample ID	Matrix * Comp / Grab	(or C	e Start) Time	Composite End Res. P	Number & Type of Containers Dhiorio	III ddv	Sample Comment
S-UG-1A	wT S	11-13-23	0945				4
s-UG-2	WT 1	-	1053		-		
S-DG-1	WT		1035				
S-DG-2	ΨΤ		1120				
S-DG-3	WT		12 67				
S-DG-4	WT		1300				
S-SCPC-DUP-1	ŢŴ		١				
S-SCPC-FB-1	Ţ		1028				
s-scpc-ms-1	ŢŴ		2445				Culled a GTMW
s-scpc-MsD-1	1	-	2460		TTTT		rallected 85-01-14
Customer Remarks / Special Conditions / Possible Hazards: *- App III and CatVAn Metals*- EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Na, Ca, B		ŬĔ	Collected By: Cant Mer	Additi	Additional Instructions from Pace®:	
			Si	Signature: Wind Mrs	2 <b>.</b>	# Coolerts Thermometer ID: Correction	Correction Factor (°C): Obs. Temp (°C) Corrected Temp. (°C) -0-3 6.9 () 1.4 () · 0.6 () · 3 () · 4
Reinforcingent by Company: Escimance	Da	Date/Time: 11-14-23	11430	Received Vijson Mr. (Signature)	L	ULISAS OSII	
relinduished by/Lompany: (s)@nature)	8	Dafe/Time:	a.	Received Dy/Company: (Signature)		Date/Time:	Defivered by: [ ] In- Person [ ] Courier
Relin <del>kg</del> åhed by/Company: (Signature) SS	Da	Date/Time:	Rec	sceived by/Company: (Signature)		Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relingoshed by/Company: (Signature)	Da	Date/Time:	Re	Received by/Company: [Signature]		Date/Time:	Page: Cof
Subrowing 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/	vledgment and acc	eptance of the Pace®	Terms and Cond	litions found at https://www.pacelabs.co	om/resource-library/resource/pace-	erms-and-conditions/	ENV-FRM-CORQ-0019_001_082123 @

DC#\_Title: ENV-FRM-LENE-0001\_Sample Container Count Revision: 3 | Effective Date: | Issued by: Lenexa

Pace Analytical Services, LLC

Page 34 of 35

00442112

Page 1 of 1

LAB USE ONLY. Affix Workforder/Label Here	)		Scan OR Code for instructions			**Container Stee: (1) 11, (2) 500mL (3) 250mL (4)		e**** **** **** **********************	NatiSO4, (3) So4. Thiosulate, (9) Accorbic Acid, (10) Meton, 111) Other		Jamie Church Accelution (Criscolation)			Profile / Template:	15856, Une 2 Prelog / Bottle Ord. ID:			log under SCPA-CA	log under SCPA-CA						Correction Factor (*C): Obs. Temp. (*C) Corrected Temp. (*C)	Tracking Number:	Delivered by: [ ] In-Person [ ] Courier	Š	ď	LCORQ-0019
LAB USE ONLY-			Scan OR Co			Specify Container Size **		Identify Container Preservative Type	Analysis Requested		*( <i>L</i> .(	(200				S Ajiujie	AIA DT	< < / >	000					Additional Instructions from Pace®:	# Coolers: Thermometer JD:	Date/Time:	Date/Time:	Date/Time:	Date/Time:	I ry/resource/pace-terms-and-conditions/
	CHAIN-OF-CUSTODY Analytical Request-Socument Chainof-Custody is a LEGAL DOCUMENT - Complete all relevant fields		mark-haddock@rocksmithgeo.com	Jeff Ingram, jeff.ingram@rocksmithgeo.com		mark.haddock@rocksmithgeo.com	L].			Missouri		DW PWSID # or WW Permit # as annih-shim.	15	Field Filtered (if applicable): [ ] Yes [ ] No	- 0	Composite End Res. Number & Type of Contracts	Plastic Glass	1	• • • • • • • • • • • • • • • • • • • •					Printed By: Grant Marey	Signature: MAThing	eceived by/Company: (Signature)	eceived by/Company: (Signature)	Received by/Company: (Signature)	Received by/Company: (Signature)	ditions found at https://www.pacelabs.com/resource-libra
	CHAIN-OF-CUSTODY / Chain-of-Custody is a LEGAL	Contact/Report To: Mark Haddoch 10 63043 Phone #: 314-974-5578	E-Mail:	Cc E-Mail: Jeff Ingram, je	Invoice To: Mark Haddock	Invoice E-Mail: mark.haddock	Purchaeo Order #16	and a subject of the	Quote #:	County / State origin of sample(s):	Regulatory Program (DW, RCRA, etc.) as applicable:	Ruch (Ore-annewed required).	[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other	Date Results Requested:	ter (GW), Waste Water (WW), Product (P), Soil/Solid (	Matrix * Comp / Collected	_	T 6 11/10/23 0757	T ( 11/10/23 0918					-		0010/11mm -23/1550 P	Date/Time: Re	Date/Time: Re	Date/Time: Ru	ent and acceptance of the Pace <sup>®</sup> Terms and Cond
Pace Linker (Chy/State): Pace Answer Lances		Company Name: Rocksrnith Geoengineering, LLC Street Address: 2320 Creve Coeur Mill Road, Maryland Heights, MD 63043			ect #:	Project Name: AMEREN SCPC	Site Collection Info/Facility ID (as applicable):			Time Zone Collected: { ] AK [ ] PT [ ] MT [ ] CT [ ] ET	Data Deliverables: Regul	[ ] Level II [ ] Level II [ ] Level IV		[] Other Date Renu	* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid ( Other (OT), Surface Water (SW),Sediment (SED). Studiee (SL). Cault	Customer Sample ID Matri		S-BMW-1S WT	S-BMW-3S WT					Customer Remarks / Special Conditions / Possible Hazards: * - App III and CatVAn Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B		Relinaution of March of March 1 March 1 March 1	Relinquished by/Company: (Signature)	Add quished by/Company: [Signature]	Mquished by/Company: (Signature)	Sumitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace <sup>®</sup> Terms and Conditions found at https://www.pacetabs.com/resource-library/resource/pace-terms-and-conditions,



# Memorandum January 23, 2024

То:	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 – S	CPC – Data Package 60442112

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

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

# **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Company Name: Rocksmith Geoengineering	Project Manager: <sup>J. Ingram</sup>
Project Name: Ameren SCPC	Project Number: 23009
Reviewer: G. Morey	Validation Date: 1/23/2024
Laboratory: <u>Pace Analytical</u> Analytical Method (type and no.): <u>EPA 200.7 (Total Metals); SM 2</u> Matrix: Air Soil/Sed. Water Waste Sample Names <u>S-UG-1A, S-DG-1, S-DG-2, S-DG-3, S-DG-4, S-SCP</u>	]

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

	nformation	YES	NO	NA	COMMENTS
a)	Sampling dates noted?	x			11/10/2023 - 11/13/2023
b)	Sampling team indicated?	x			GTM/JSI
c)	Sample location noted?	x			
d)	Sample depth indicated (Soils)?			х	
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/performa	inces fro	om field lo	ogs or field	notes?
			X		
j)	Does the laboratory narrative indicate deficiencies?			х	No lab narrative.
	Note Deficiencies:				
Chain-	of-Custody (COC)	YES	NO	NA	COMMENTS
Chain-		_	<b>NO</b>	NA	COMMENTS
	Was the COC properly completed?	YES ×	_	_	COMMENTS
a)		_	_	_	COMMENTS
a)	Was the COC properly completed? Was the COC signed by both field	X	_		
a) b)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	×			
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel?	×			
a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× ×			
a) b) c) Genera	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition?	× × YES			
a) b) c) Genera a)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment?	× × YES	       NO		COMMENTS
a) b) c) Genera a) b)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis?	× × YES	□ □ NO		COMMENTS
a) b) c) <b>Genera</b> a) b) c)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used? Was the correct method used?	× × YES ×	□ □ NO		COMMENTS
a) b) c) <b>Genera</b> a) b) c) d)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used?	× × ¥ ¥ ¥ ×	□ □ NO □ □		COMMENTS
a) b) c) <b>Genera</b> a) b) c) d) e)	Was the COC properly completed? Was the COC signed by both field and laboratory personnel? Were samples received in good condition? Al (reference QAPP or Method) Were hold times met for sample pretreatment? Were hold times met for sample analysis? Were the correct preservatives used? Was the correct method used? Were appropriate reporting limits achieved?	× × YES × ×	□ □ NO □ □		COMMENTS See Notes

# **QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST**

Blanks		YES	NO	NA	COMMENTS
a)	Were analytes detected in the method blank(s)?		х		
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	
Labora	tory 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?		х		See Notes
Duplica	ates	YES	NO	NA	COMMENTS
a)	Were field duplicates collected (note original and du	plicate	sample n	ames)?	
		X			S-SCPC-DUP-1 @ S-DG-2
b)	Were field dup. precision criteria met (note RPD)?	x			
c)	Were lab duplicates analyzed (note original and dup	olicate s	amples)?	?	
		x			See Notes
d)	Were lab dup. precision criteria met (note RPD)?	X			
Blind S	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?			Х	
Matrix	Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a)	Was MS accuracy criteria met?		х		See Notes
	Recovery could not be calculated since sample contained high concentration of analyte?			×	
b)	Was MSD accuracy criteria met?		Х		See Notes
	Recovery could not be calculated since sample contained high concentration of analyte?			X	
c)	Were MS/MSD precision criteria met?		х		See Notes

#### Comments/Notes:

General:

Chloride, fluoride, and sulfate analyzed outside of hold time controls for many samples, results qualified as estimates.

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

## **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

#### Comments/Notes:

Field Blanks:

S-SCPC-FB-1 @ S-DG-1: manganese (0.55J). Results > RL and 10x blank, no qualification necessary.

Laboratory Control Samples:

3471853: LCS recovery high for fluoride, associated with samples -001 and -002. Results are non-detects, no qualifications necessary.

3474187: LCS recovery high for fluoride, associated with samples -001 through -008. All results are non-detects, no qualifications necessary.

Duplicates:

Lab duplicate Max RPD: 10%: Alkalinity, TDS; 15%: Chloride, Fluoride, Sulfate

#### MS/MSD:

3465243/3465244: MS recovery high, MSD recovery low for sodium. Associated with unrelated sample, no qualification necessary.

3465245: MS recovery low for sodium. Associated with unrelated sample, no qualification necessary.

3466219/3466220: MS/MSD recoveries low for calcium. Associated with unrelated sample, no qualification necessary.

3466221/3466222: MSD recoveries low for calcium and magnesium, MS recoveries and RPD's within control limits, no qualifications necessary.

3466223: MS recovery low for calcium, associated with sample -004. Result qualified as estimate.

3467641/3467642: MS/MSD recoveries high for calcium, magnesium, manganese, and sodium. Associated with

sample -007. Results qualified as estimates.

3469021/3469022: MSD recovery high for fluoride, MS and RPD within control limits, no qualification necessary.

3471512/3471513: MSD recovery high for sulfate, RPD exceeds control limit. Associated with unrelated sample, no

qualification necessary.

### **QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST**

#### Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-UG-1A	Chloride	74.8	J	Analyzed outside of hold time controls
"	Fluoride	0.12	UJ	"
"	Sulfate	52.7	J	"
S-DG-1	Chloride	2.5	J	"
"	Fluoride	0.12	UJ	"
"	Sulfate	19.4	J	n
S-DG-2	Chloride	2.3	J	"
"	Fluoride	0.12	UJ	"
"	Sulfate	35.2	J	u.
S-DG-3	Chloride	8.2	J	"
"	Fluoride	0.12	UJ	"
"	Sulfate	65.1	J	"
S-DG-4	Chloride	12.4	J	"
"	Fluoride	0.12	UJ	n
"	Sulfate	63.3	J	"
S-SCPC-DUP-1	Chloride	2.3	J	"
"	Fluoride	0.12	UJ	"
"	Sulfate	32.1	J	"
S-SCPC-FB-1	Chloride	0.53	UJ	"
"	Fluoride	0.12	UJ	"
"	Sulfate	0.55	UJ	n
S-UG-2	Chloride	12.9	J	"
"	Fluoride	0.12	UJ	"
"	Sulfate	0.79	J	'n
S-DG-2	Calcium	133,000	J-	MS recovery low
S-SCPC-DUP-1	"	120,000	J+	MS/MSD recoveries high
"	Magnesium	25,100	J+	"
"	Manganese	433	J+	"
"	Sodium	3840	J+	n

Signature: \_\_\_\_\_\_ Hront Morey

\_\_\_\_\_ 01/23/2024

Appendix B Alternative Source Demonstration – **October 2022 Sampling Event** 



REPORT

# SCPC – Alternative Source Demonstration Sioux Energy Center, St. Charles County, Missouri, USA

May 19, 2023

Submitted to:

Submitted by:



Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103



Rocksmith Geoengineering, LLC



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- Table 2 Review of Statistically Significant Increase (Embedded in Text)
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# **1.0 CERTIFICATION STATEMENT**

This SCPC – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA 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 Rocksmith Geoengineering, LLC.

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

### Rocksmith Geoengineering, LLC.,



Mark Haddock, P.E., R.G. Principal Engineer, Senior Partner



# 2.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCPC – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for two Statistically Significant Increases (SSIs) identified for Ameren Missouri's (Ameren's) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) SCPC Cell 1. This document satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

# 3.0 SITE DESCRIPTION AND BACKGROUND

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

## 3.1 Geological and Hydrogeological Setting

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

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

## 3.2 Utility Waste Landfill - SCPC

UWL Cell 1 is referred to by Ameren as the SCPC, or "Gypsum Pond" Cell 1. The SCPC is approximately 37.5 acres in size and is located south of the generating plant on the south side of Highway 94 (Figure 1). The CCR Unit manages CCR from the SEC Wet Flue-Gas Desulfurization System (WFGD) which began operation in 2010.

The WFGD process occurs after the removal of slag and fly ash where a crushed limestone (CaCO3) mix is introduced into the boiler flue gas flow. The limestone reacts with the sulfur dioxide (SO2) in the flue gas and produces 'synthetic' gypsum (calcium



sulfate dihydrate (CaSO4 \* 2H2O)). The resultant gypsum material is wet sluiced from the plant across the highway to the SCPC. Once there, the gypsum dewaters by gravity with the sluice conveying water recycled back to the WFGD for reuse. The primary soluble constituents of the gypsum CCR are sulfate, calcium, chloride, and sodium (Gredell and Reitz & Jens, 2014).

The SCPC was constructed with a composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than 1 X 10-7 centimeters per second (cm/sec) overlain by an 80-mil HDPE geomembrane liner. Information on the design of the UWL is available in the 2014 Proposed Construction Permit Modification, Construction Permit Number 0918301 (Gredell and Reitz & Jens, 2014).

A groundwater monitoring well network was installed in 2007 and 2008 in order to permit the UWL construction. This monitoring well network was approved by the Missouri Department of Natural Resources (MDNR) and consists of sixteen (16) monitoring wells ringing the current and proposed future extents of the UWL (Figure 1). These monitoring wells are installed in the uppermost portions of the alluvial aquifer, just below the seasonally low



elevation for groundwater. Quarterly groundwater samples have been collected in these monitoring wells since June 2008 for the state required UWL parameters.

The permit for the SCPC was issued July 30, 2010 (permit #0918301). Nine (9) sampling events were performed prior to July 30, 2010 and represent groundwater quality prior to WFGD placement in the UWL. The results from these pre-disposal monitoring events are used in conjunction with other site information in the ASD presented below.

## 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, the following were completed prior to the October 17, 2017 deadline: (1) a groundwater monitoring well system was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, (3) a Groundwater Monitoring Plan (GMP) was prepared recording the design, installation, development, sampling procedures, as well as statistical methods, and placed in the owner's operating record, and (4) eight (8) baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of CCR Rule.

The groundwater monitoring system for the SCPC consists of eight (8) monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on Figure 1. Six (6) existing monitoring wells (UG-1A, UG-2, DG-1, DG-2, DG-3, and DG-4) were installed by Gredell Engineering Resources, Inc. in December 2007 and June 2008 as a part of the state UWL state monitoring program. The remaining monitoring wells (BMW-1S and BMW-3S) were installed by Golder in 2016 for CCR Rule groundwater monitoring purposes. More information on the design and installation of the monitoring wells is provided in the SCPC GMP (Golder, 2017) and the SCPC 2017 Annual Report (Golder, 2018).

Between May 2016 and June 2017, eight (8) baseline sampling events were completed for the SCPC. After baseline sampling, the first detection monitoring event was completed in November of 2017. The following Appendix III constituents were sampled during detection monitoring:

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

In January 2018, background results from the eight (8) baseline sampling events were used to calculate statistical upper prediction limits (UPLs). These UPLs were then compared to the detection monitoring results from the November 2017 samples and subsequent semi-annual detection monitoring sampling events. If results from the detection monitoring event were higher than the calculated UPL, it was considered to be an initial exceedance, in which case a verification sample was then collected and tested in accordance with the SCPC Statistical Analysis Plan (SAP). In August 2019, the background dataset used to calculate statistical limits was expanded to include the first four detection monitoring events, per the SAP. The updated UPLs were then used for the November 2019 and subsequent detection monitoring events. The following provides a summary of the detection monitoring results to date.

Since November 2017, several ASDs have been prepared for DG-2, DG-3, DG-4, UG-1A, and UG-2. These previous ASDs are available in the Annual Reports for the SCPC and are available on Ameren's publicly available CCR Compliance website (https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports). These ASDs have demonstrated that previous SSIs at the site were not caused by the SCPC, but rather primarily the result of relatively low calculated UPLs that were not representative of the full, natural geochemical variability within the alluvial aquifer or primarily caused by the SCPC being downgradient from the SCPA, which is currently in corrective action.

In October 2022, 4 initial exceedances were identified for pH and fluoride at UG-1A, TDS at DG-2, and TDS at DG-3. Verification sampling results confirmed only the TDS at DG-3 to be an SSI. Results from this sampling event are provided in **Table 1**.



# 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

TDS at DG-3 is the only verified SSI from the October 2022 sampling event. Monitoring well DG-3 is screened in the upper portion of the alluvial aquifer, just below the average seasonal low for groundwater. As shown in **Figure 1**, DG-3 is located south of the SCPC, south of the generating plant and the two surface impoundments near the plant (SCPA and SCPB), and north of Dwiggins Road.

Based on Rocksmith's review of the pre-disposal data (discussed in Section 3.2 above), as well as our comparison of the pre-disposal data with the results from the eight CCR-rule baseline events, it was concluded that the groundwater in some areas around the SCPC contained low-level pre-existing impacts from CCR that pre-dated SCPC construction and operation. As a result of these pre-existing impacts, the SCPC statistical analysis plan uses intrawell upper prediction limits (UPLs) to determine SSIs. Intrawell UPLs are calculated from historical data within a particular well, and not by pooling data from the background wells, such that individual limits are calculated for each constituent in each well in the monitoring program. A summary table of the October 2022 SSI is provided in **Table 2**.

#### Table 2: Review of Statistically Significant Increase

Constituent	Well ID	UPL Based on Baseline Events	August 2019 Updated UPL	Current UPL (Updated March 2022)	Baseline Sampling Event Range	Sampling October 2022 Sampling Event (CCR Rule and State		January 2023 Results
Total Dissolved Solids (mg/L)	DG-3	580	624.7	592.9	528 - 580	430 - 624	622	595

Notes:

- 1) mg/L milligrams per liter.
- 2)  $\mu g/L$  micrograms per liter.
- 3) UPL Upper Prediction Limit. UPLs calculated using Sanitas<sup>™</sup> software.

TDS is the sum of all dissolved solids within water and refers to any minerals, salts, metals, cations or anions dissolved in water. TDS is principally made up of calcium, magnesium, potassium, sodium, bicarbonates (alkalinity), chlorides, sulfates and some small amounts of organic matter.

# 5.0 EVIDENCE OF SSI FROM ALTERNATIVE SOURCE

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

- Construction of the SCPC with a 60-mil geomembrane liner and a 2-foot thick clay barrier.
- Lack of elevated key FGD Indicators (sulfate, boron, calcium, fluoride, chloride) in monitoring wells with SSIs.

## 5.1 CCR Indicators

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

Table 3: Types of CCR and	Typical Indicator Parameters
---------------------------	------------------------------

Type of CCR	Description of CCR (USEPA 2018)	Key Indicators (EPRI 2011, 2012, 2017)
Fly Ash	Fine grained, powdery material composed mostly of silica made from	• Boron



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

Notes:

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

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

## 5.1.1 Evaluation of Key CCR Indicators of FGD Type Wastes

As indicated on **Table 2**, sulfate, fluoride, calcium, boron, bromide, and chloride are all good indicators of FGD type waste impacts because these constituents typically have a relatively high concentration in the leachate materials when compared with natural groundwater conditions and are typically non-reactive and mobile in most hydrogeological environments (EPRI 2012). As a part of the CCR Rule groundwater monitoring and the state UWL groundwater monitoring, sulfate, fluoride, calcium, boron, and chloride have been tested for since June of 2008. Bromide has not been tested in either the state UWL or CCR Rule monitoring programs.

**Figure 2 – 6** display the full historical set of sulfate, boron, calcium, fluoride and chloride concentrations including the period prior to the receipt of CCR at DG-3. For each of these constituents, current concentrations are at or below those from pre-CCR Placement. This lack of elevated key FGD indicators since the placement of FGD in the SCPC demonstrates that elevated concentrations in DG-3 for TDS are not from the SCPC, but rather an alternative source.

## 5.2 Elevated Total Dissolved Solids (TDS) at DG-3

TDS alone is not a key indicator of CCR or FGD (EPRI 2017, EPRI 2012). As displayed on **Figure 7**, concentrations for the October 2022 and subsequent January 2023 verification sampling event are 622 and 595 mg/L, respectively. These values are just above the original calculated UPL used for TDS concentrations at DG-3 of 580 mg/L and the current UPL of 592.9 mg/L. Furthermore, the values are below the UPL calculated using data through the August 2019 background update of 624.7.

To further investigate the geochemical variability of TDS in the UWL area, the historical data from the state UWL wells (located on the south side of the SCPC, outside of the interpreted zone of impact form the SCPA) were reviewed. These UWL wells (labeled "DG-xx") were installed and sampled on at least 9 occasions prior to the receipt of FGD in the SCPC. These DG-xx monitoring wells are screened at approximately the same depth as DG-3 in the shallow zone of the alluvial aquifer. **Figure 8** displays a box and whisker plot of the natural variability of the TDS concentrations for the DG-xx wells, which represent groundwater quality from a period that occurred prior to the receipt of FGD in the SCPC. Using all the pre-disposal data from the 12 DG-xx wells, a non-parametric UPL of 678 mg/L is calculated. As displayed in **Figure 8**, the October 2022 and January 2023



sampling results are well within the pre-FGD limits using the monitoring wells near DG-3 and display that the October 2022 and January 2023 results are within the naturally occurring range (290 – 678 mg/L) for the site.

As discussed above, the majority of TDS is made up of calcium, magnesium, sodium, potassium, chloride, sulfate, and alkalinity concentrations. **Table 4** displays the concentration of each of these constituents for semiannual detection monitoring sampling event since November 2018.

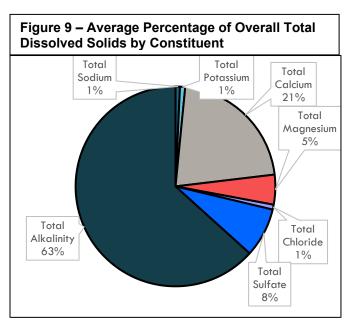
Sample Date	Total Sodium (mg/L)	Total Potassium (mg/L)	Total Calcium (mg/L)	Total Magnesium (mg/L)	Total Chloride (mg/L)	Total Alkalinity (mg/L)	Total Sulfate (mg/L)
11/13/2018	4.42	5.12	137	29.5	9.1	432	64.7
8/19/2019	4.68	6.47	148	39.1	4.8	450	49.5
11/14/2019	4.78	6.70	144	38.1	5.4	447	51.1
4/28/2020	4.60	5.22	134	28.5	5.5	412	52.8
11/17/2020	5.54	6.58	160	38.4	3.8	451	41.0
4/14/2021	4.47	5.03	143	29.1	5.9	405	60.9
11/10/2021	5.18	5.76	146	32.5	2.7	419	46.8
4/1/2022	5.15	6.15	163	28.3	8.5	460	63.9
10/21/2022	5.29	6.05	162	36.8	3.3	455	63.8
Average Concentration	4.90	5.90	148.6	33.4	5.44	436.8	54.9
October 2022 Ranking	2 <sup>nd</sup>	5 <sup>th</sup>	2 <sup>nd</sup>	4 <sup>th</sup>	8 <sup>th</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>

Table 4 – Total Dissolved Solids Major Constituent Concentrations over Time

Notes:

- 1) Alkalinity is equal to Carbonate + Bicarbonate.
- 2) mg/L Milligrams per liter.

Review of **Table 4** displays that current concentrations for each of the major components of TDS are at or below previous sample results since November 2018. Therefore, as displayed in **Table 4** and as discussed in Section 5.1.1 concentrations from the October 2022 sampling event are well within naturally occurring values (pre-FGD placement range) for DG-3. However, as displayed in Figure 9, alkalinity, calcium, and sulfate concentrations make up approximately 92% of the total TDS value, for this well on average. In the October 2022 sampling event, the alkalinity result was the 2<sup>nd</sup> highest of the 9 results, calcium was 2<sup>nd</sup> highest of the 9 results, and sulfate was 3<sup>rd</sup> highest of the 9 available results. This indicates that while each individual result is within historical values for that constituent, higher concentrations of alkalinity, sulfate and calcium were reported during the October 2022 sampling event, causing a slightly elevated TDS value when compared



to the site UPL. Therefore, the TDS from this October 2022 event was elevated due to naturally occurring high calcium, alkalinity and sulfate values at DG-3 in the pre-FGD placement range of concentrations for the aquifer in this area.

The lack in increasing FGD indicators from prior to CCR placement with those present in the October 2022 sampling event and presence of TDS within the range of nearby wells demonstrates that TDS reported for the



October 2022 sampling event is naturally occurring. The TDS result is within the pre-FGD placement range of concentrations for the aquifer in this area and not caused by impacts originating from the SCPC.

# 6.0 DEMONSTRATION THAT SSI WAS NOT CAUSED BY SCPC IMPACTS

Based on the information provided in Section 5, the SSI for TDS at DG-3 was not caused by impacts from the SCPC. The SSI appears to be a result of numerous factors including (1) relatively low calculated UPLs that do not account for the natural variability present and (2) naturally occurring higher alkalinity, sulfate and calcium concentrations causing slightly elevated TDS values that have not yet been captured during post-FGD placement sampling at DG-3. Along with these lines of evidence listed above, the SCPC is documented to be constructed with an engineered compacted clay liner which is overlain by a 60-mil HDPE geomembrane liner system, which was designed and constructed to properly contain CCR and prevent groundwater impacts. The SSI for TDS observed in DG-3 is not caused by impacts from the SCPC, but is the result of natural variability within the alluvial aquifer and within the pre-FGD placement range of concentrations for the aquifer in this area.

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# Tables



### Table 1 October 2022 Detection Monitoring Results SCPC Surface Impoundment Sioux Energy Center, St. Charles County, MO

		BACKGR	OUND					GROU	INDWATER M	ONITORING V	VELLS				
ANALYTE	UNITS	BMW-1S	BMW-3S	Prediction Limit UG-1A	UG-1A	Prediction Limit UG-2	UG-2	Prediction Limit DG-1	DG-1	Prediction Limit DG-2	DG-2	Prediction Limit DG-3	DG-3	Prediction Limit DG-4	DG-4
	October 2022 Detection Monitoring Event														
DATE	NA	10/18/2022	10/18/2022	NA	10/21/2022	NA	10/21/2022	NA	10/20/2022	NA	10/21/2022	NA	10/21/2022	NA	10/21/2022
рН	SU	6.84	7.01	6.423-7.284	6.26	6.29-7.36	7.00	6.653-7.324	6.95	6.681-7.341	6.93	6.64-7.251	6.89	6.617-7.24	6.94
BORON, TOTAL	μg/L	73.0 J	84.2 J	462.2	ND	264.7	184	118.8	ND	114.3	ND	103.9	ND	114.5	ND
CALCIUM, TOTAL	μg/L	168,000	131,000	204,191	109,000	146,120	122,000	174,000	131,000	161,503	130,000	168,024	162,000	167,122	136,000
CHLORIDE, TOTAL	mg/L	9.2	11.7	147.5	6.4	98.49	59.2	10	3.4	10.72	2.8	17.71	3.3	111.7	54.0
FLUORIDE, TOTAL	mg/L	0.20 J	0.22	0.4	0.47	0.3257	ND	0.3803	ND	0.4553	ND	0.4775	ND	0.4524	ND
SULFATE, TOTAL	mg/L	61.1	27.8	115.8	72.2	95.94	47.3	71.52	28.1	68.0	32.3	72.94	63.8	80.26	52.0
TOTAL DISSOLVED SOLIDS	mg/L	711	467	810.6	279	758	649	548.8	517	537.9	1,320 J	592.9	622	808	636
		-		-	J	anuary 2023	Verification S	ampling Even	t				-		
DATE	NA				1/4/2023						1/3/2023		1/3/2023		
рН	SU				7.04										
BORON, TOTAL	μg/L														
CALCIUM, TOTAL	μg/L														
CHLORIDE, TOTAL	mg/L														
FLUORIDE, TOTAL	mg/L				ND										
SULFATE, TOTAL	mg/L														
TOTAL DISSOLVED SOLIDS	mg/L										474		595		

#### NOTES:

1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.

2. J - Result is an estimated value.

3. NA - Not applicable.

4. Prediction Limits calculated using Sanitas Software.

5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).

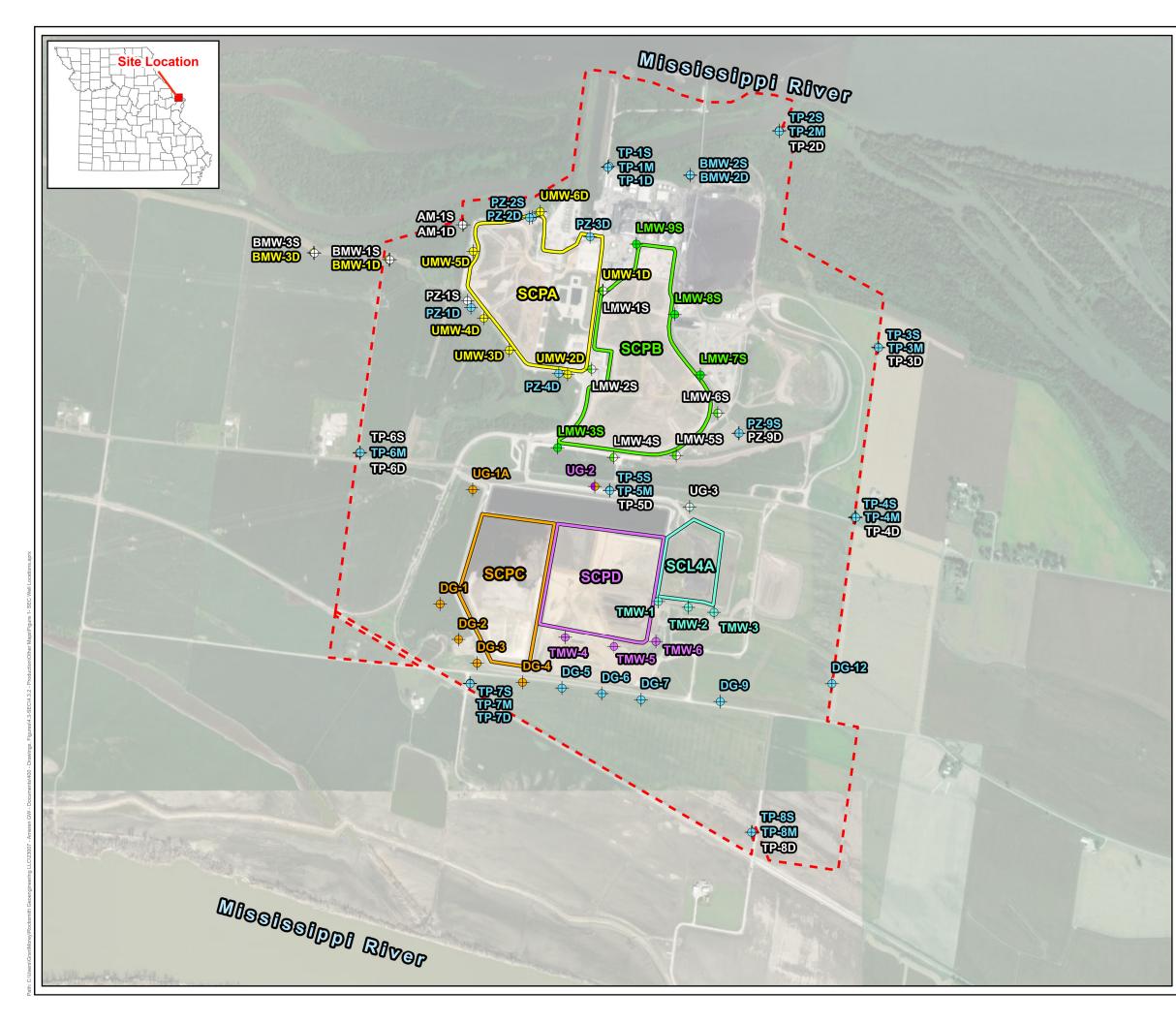
6. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).

7. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

8. 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.

# Figures





### SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

#### Legend

	-
CD	Sioux Energy Center Property Boundary
CCR	Units
	SCPA - Bottom Ash Surface Impoundment (Closed)
	SCPB - Fly Ash Surface Impoundment (Closed)
Utilit	y Waste Landfill Cells
	SCL4A - Dry CCR Disposal Area
	SCPC - Inactive FGD Surface Impoundment (Closure in Progress)
	SCPD - FGD Surface Impoundment
Moni	toring Well Networks
$\oplus$	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
<b>+</b>	SCPD Detection Monitoring Well
4	SCI 4A and Corrective Action Monitoring Well

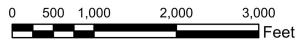
- $\oplus$ SCL4A and Corrective Action Monitoring Well
- $\blacklozenge$ SCL4A Detection Monitoring Well
- $\blacklozenge$ Monitoring Well Used for Water Level Elevation Measurements Only

#### NOTES

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

#### REFERENCES

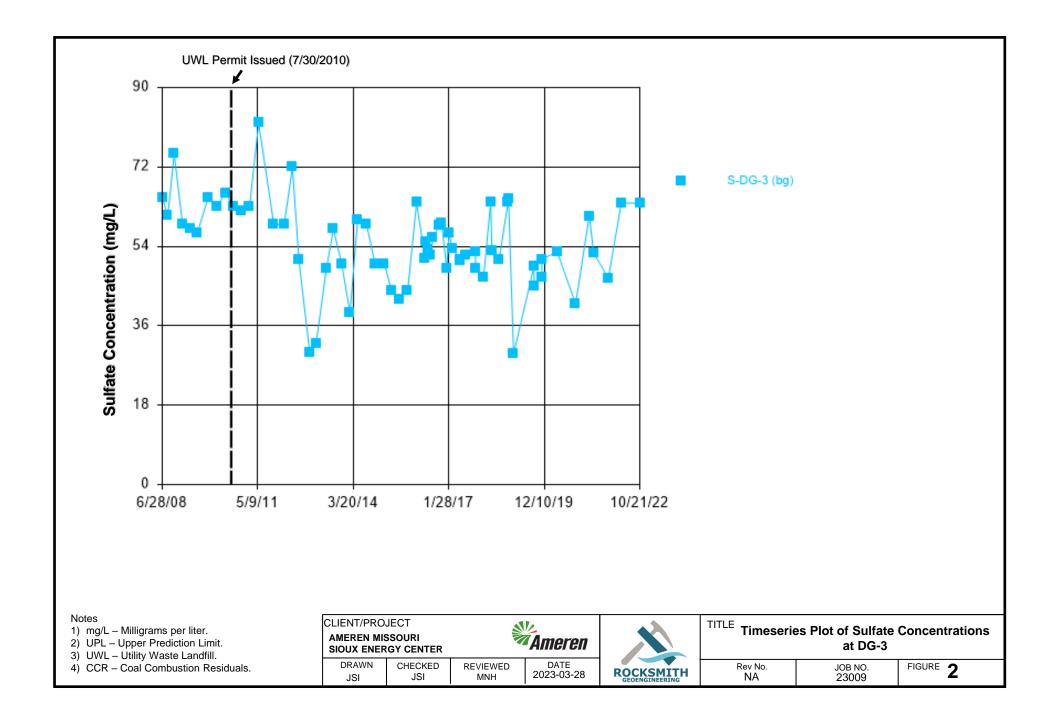
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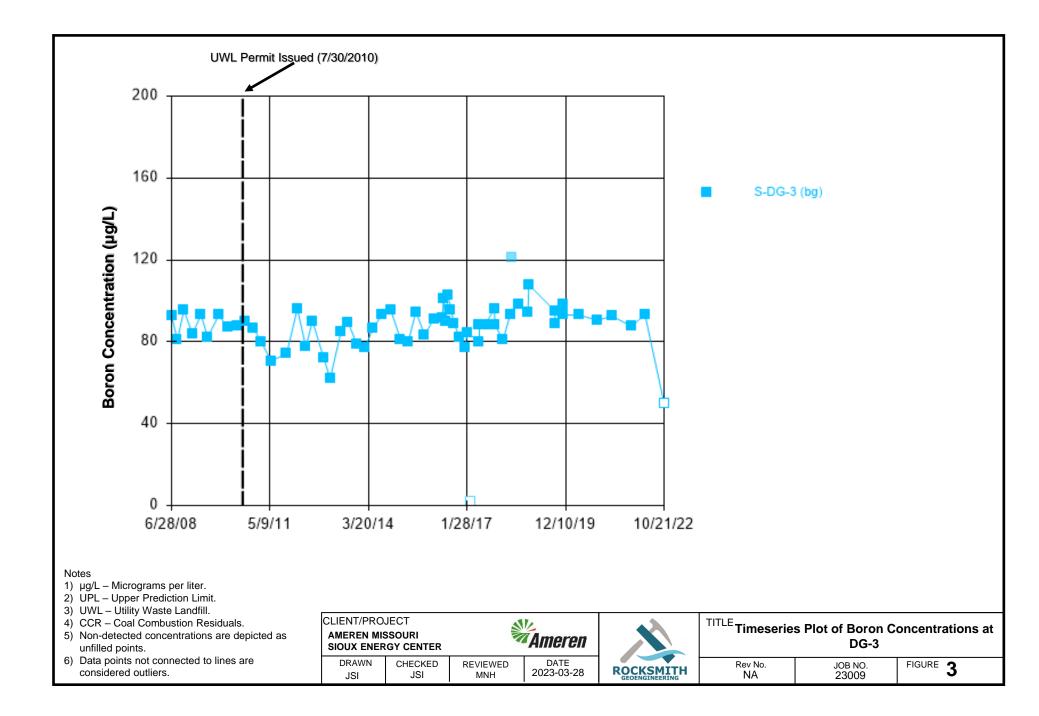


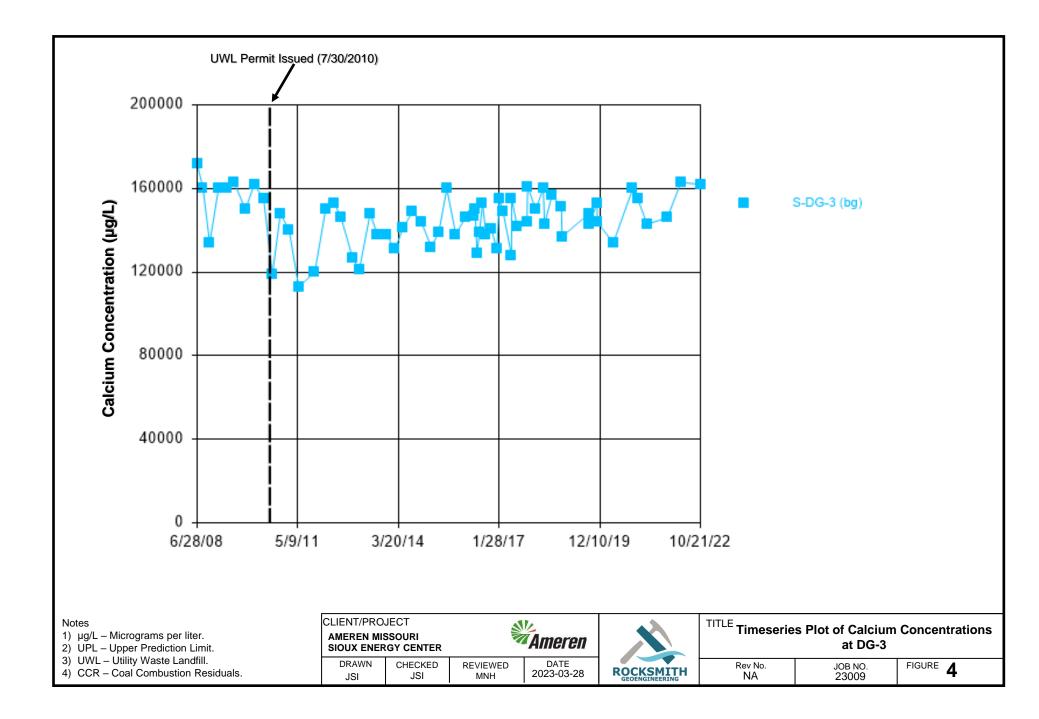
#### PROJE

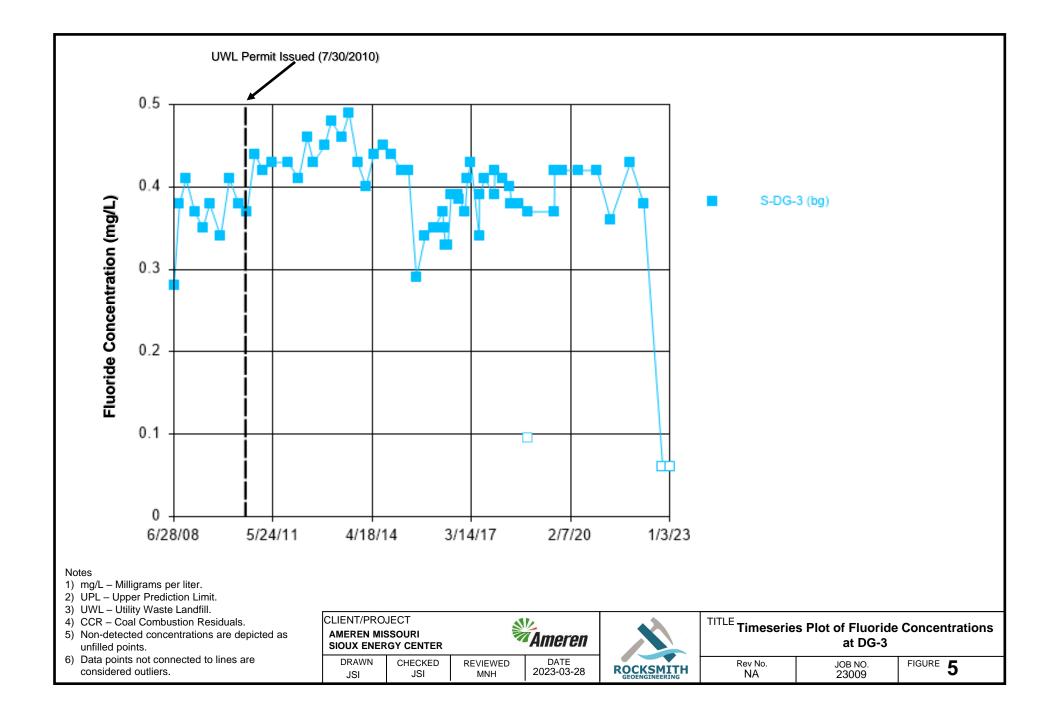
CCR RULE GROUNDWATER MONITORING PROGRAM

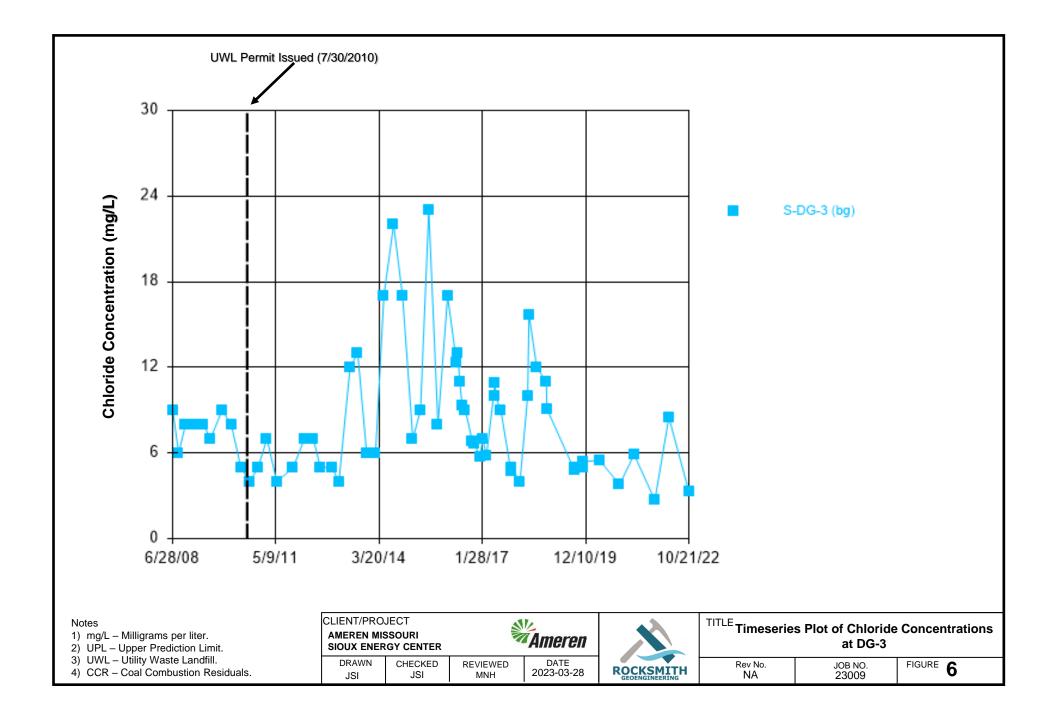
CLIENT AMEREN MISSOURI SIOUX ENERGY CENTI	ER		<b>Ameren</b>
	DESIGN	JSI	YYYY-MM-DD 2023-03-29
	PREPARED	JSI	PROJECT No. 23009
	REVIEW	GTM	
	APPROVED	MNH	FIGURE 1

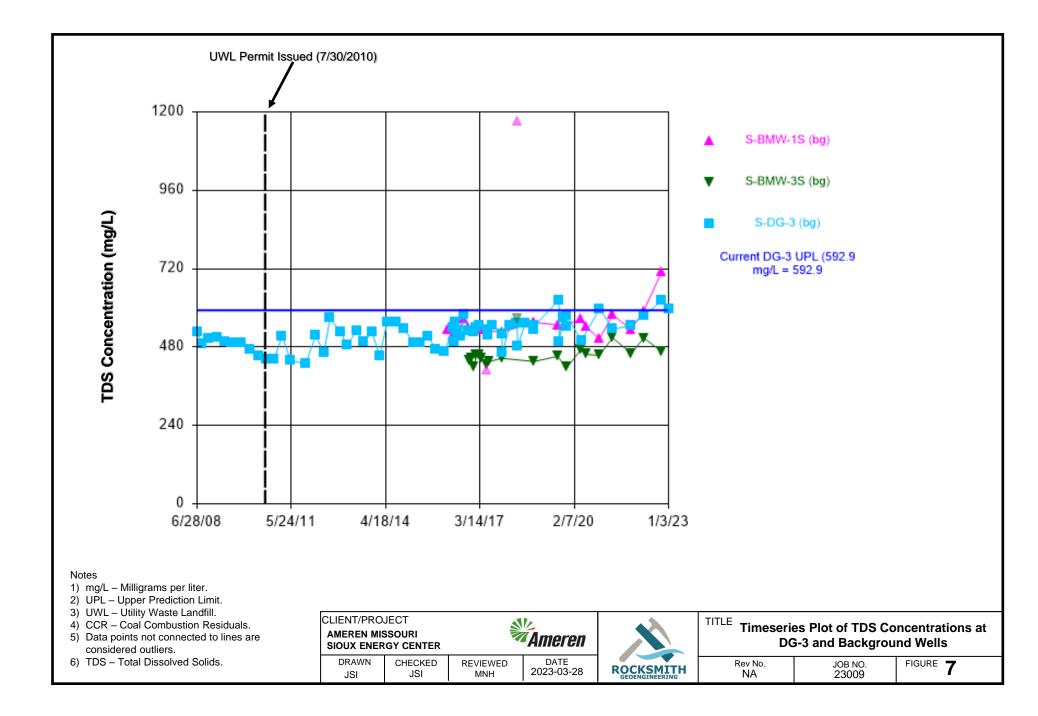


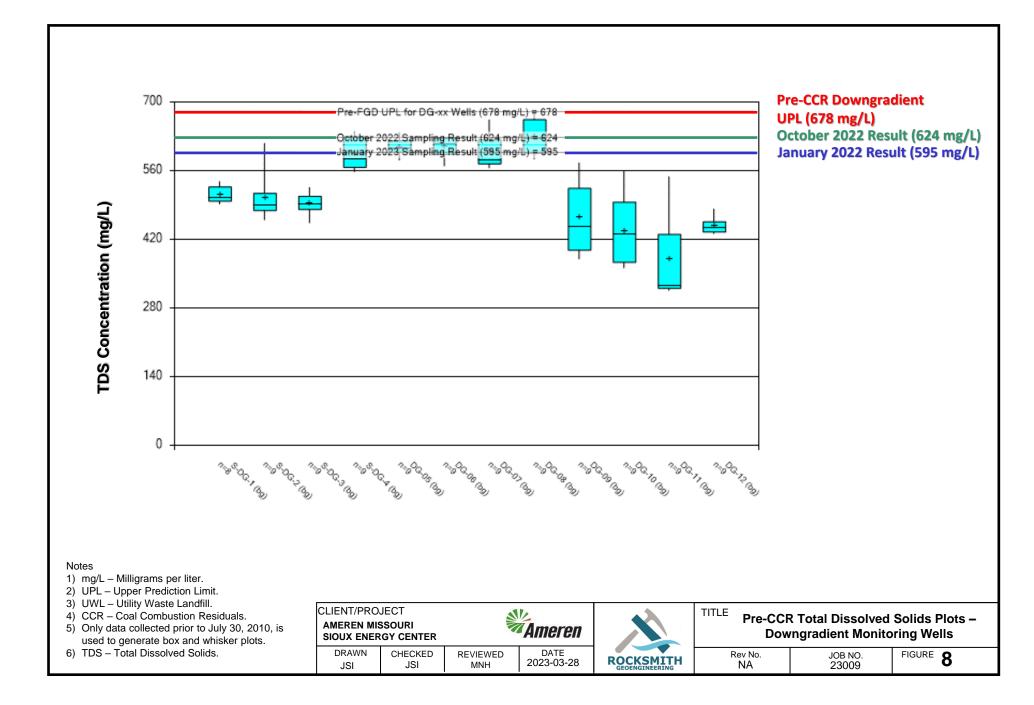












# Appendix C

Alternative Source Demonstration – May 2023 Sampling Event



REPORT

# SCPC – Alternative Source Demonstration

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

December 18, 2023 Project Number: 23009

Submitted to:



Ameren Missouri 1901 Chouteau Ave St. Louis, MO 63103 Submitted by:



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



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# **1.0 CERTIFICATION STATEMENT**

This SCPC – Alternative Source Demonstration, Sioux Energy Center, St. Charles County, Missouri, USA 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 Rocksmith Geoengineering, LLC.

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

### Rocksmith Geoengineering, LLC.,



Mark Haddock, P.E., R.G. Principal Engineer, Senior Partner



# 2.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), this SCPC – Alternative Source Demonstration has been prepared to document an Alternative Source Demonstration (ASD) for 3 Statistically Significant Increases (SSIs) identified for Ameren Missouri's (Ameren's) Sioux Energy Center (SEC), Utility Waste Landfill (UWL) SCPC Cell 1. This document satisfies the requirements of §257.94(e)(2), which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

# 3.0 SITE DESCRIPTION AND BACKGROUND

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

## 3.1 Geological and Hydrogeological Setting

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

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

## 3.2 Utility Waste Landfill - SCPC

UWL Cell 1 is referred to by Ameren as the SCPC, or "Gypsum Pond" Cell 1. The SCPC is approximately 37.5 acres in size and is located south of the generating plant on the south side of Highway 94 (Figure 1). The CCR Unit managed CCR from the SEC Wet Flue-Gas Desulfurization System (WFGD), which began operation in 2010. The unit ceased receiving CCR waste on December 14, 2022 and closure has begun on the unit. Closure is anticipated to be completed by the end of 2024. Since that date, the WFGD has been sent to the adjacent SCPD CCR Unit.

The WFGD process occurs after the removal of slag and fly ash. A



crushed limestone (CaCO3) mix is introduced into the boiler flue gas flow. The limestone reacts with sulfur dioxide (SO2) in the flue gas and produces 'synthetic' gypsum (calcium sulfate dihydrate (CaSO4 \* 2H2O)). The resultant gypsum material was wet sluiced from the plant across the highway to the SCPC. Once there, the gypsum dewatered by gravity with the sluice conveying recycled water back to the WFGD for reuse. The primary soluble constituents of the gypsum CCR are sulfate, calcium, chloride, and sodium (Gredell and Reitz & Jens, 2014).

The SCPC was constructed with a composite liner system consisting of two feet of compacted clay soil with a hydraulic conductivity of less than 1 X 10<sup>-7</sup> centimeters per second (cm/sec) overlain by a 60-mil high density polyethylene (HDPE) geomembrane liner. Information on the design of the UWL is available in the 2014 Proposed Construction Permit Modification, Construction Permit Number 0918301 (Gredell and Reitz & Jens, 2014).



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

The permit for the SCPC was issued July 30, 2010 (permit #0918301). Nine sampling events were performed prior to July 30, 2010 and represent groundwater quality prior to WFGD placement in the UWL. The results from these pre-disposal monitoring events are used in conjunction with other site information in the ASD presented below.

## 3.3 CCR Rule Groundwater Monitoring

As required by the CCR Rule, the following were completed prior to the October 17, 2017 deadline: (1) a groundwater monitoring well system was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, (3) a Groundwater Monitoring Plan (GMP) was prepared recording the design, installation, development, sampling procedures, as well as statistical methods, and placed in the owner's operating record, and (4) eight baseline groundwater sampling events were completed for all Appendix III and Appendix IV parameters of CCR Rule.

The groundwater monitoring system for the SCPC consists of eight monitoring wells screened in the uppermost aquifer (alluvial aquifer) as shown on Figure 1. Six existing monitoring wells (UG-1A, UG-2, DG-1, DG-2, DG-3, and DG-4) were installed by Gredell Engineering Resources, Inc. in December 2007 and June 2008 as a part of the state UWL state monitoring program. The remaining monitoring wells (BMW-1S and BMW-3S) were installed by Golder in 2016 for CCR Rule groundwater monitoring purposes. More information on the design and installation of the monitoring wells is provided in the SCPC GMP (Golder, 2017) and the SCPC 2017 Annual Report (Golder, 2018).

Between May 2016 and June 2017, eight baseline sampling events were completed for the SCPC. After baseline sampling, the first detection monitoring event was completed in November of 2017. The following Appendix III constituents were analyzed during detection monitoring:

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

In January 2018, background results from the eight baseline sampling events were used to calculate statistical upper prediction limits (UPLs). These UPLs were then compared to the detection monitoring results from the November 2017 samples and subsequent semi-annual detection monitoring sampling events. If results from the detection monitoring event were higher than the calculated UPL, this was considered to be an initial exceedance, and a verification sample was then collected and tested in accordance with the SCPC Statistical Analysis Plan (SAP). In August 2019, the background dataset used to calculate statistical limits was expanded to include the first four detection monitoring events, per the SAP. The updated UPLs were then used for the November 2019 and subsequent detection monitoring events. The following provides a summary of the detection monitoring results to date.

Since November 2017, several ASDs have been prepared for DG-2, DG-3, DG-4, UG-1A, and UG-2. These previous ASDs are available in the Annual Reports for the SCPC and are available on Ameren's publicly available CCR Compliance website (https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports). These ASDs have demonstrated that previous SSIs at the site were not caused by the SCPC, but rather primarily the result of relatively low calculated UPLs that were not representative of the full, natural geochemical variability within the alluvial aquifer or primarily caused by the SCPC being downgradient from the SCPA, which is currently in corrective action.



In May 2023, three initial exceedances were identified: boron at UG-2 as well as sulfate and TDS at DG-3. Verification sampling results confirmed each of the three initial exceedances. Results from this sampling event are provided in **Table 1**.

# 4.0 REVIEW OF THE STATISTICALLY SIGNIFICANT INCREASES

Monitoring wells UG-2 and DG-3 are screened in the upper portion of the alluvial aquifer, just below the average seasonal low for groundwater. As shown in **Figure 1**, DG-3 is located south of the SCPC while UG-2 is located north of the SCPC. Both wells are south of the generating plant, highway 94, and the two surface impoundments near the plant (SCPA and SCPB), and north of Dwiggins Road.

Based on Rocksmith's review of the pre-disposal data (discussed in Section 3.2 above), as well as our comparison of the pre-disposal data with the results from the eight CCR-rule baseline events, it was concluded that the groundwater in some areas around the SCPC contained low-level pre-existing impacts from CCR that pre-dated SCPC construction and operation. As a result of these pre-existing impacts, the SCPC statistical analysis plan uses intrawell upper prediction limits (UPLs) to determine SSIs. Intrawell UPLs are calculated from historical data within a particular well, and not by pooling data from the background wells, such that individual limits are calculated for each constituent in each well in the monitoring program. A summary table of the May 2023 SSIs is provided in **Table 2**.

Constituent	nstituent ID Baseline Events		August 2019 Updated UPL	2019 Current UPL Updated Updated March 2022)		Range of Values Prior to May 2023 Sampling Event (CCR Rule and State UWL Sampling)	May 2023 Result	July 2023 Result				
Boron (µg/L)	UG-2	234.6	208.9	264.7	88.2 – 196	ND (<100) – 2,180	458	291				
Sulfate (mg/L)	DG-3	61.41	59.31	72.94	49.1 – 59.4	29.7 - 82	76.3	75.8				
Total Dissolved Solids (mg/L)	DG-3	580	624.7	592.9	528 – 580	430 - 624	640	665				

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

Notes:

- 1) mg/L milligrams per liter.
- 2)  $\mu g/L$  micrograms per liter.
- 3) UPL Upper Prediction Limit. UPLs calculated using Sanitas<sup>™</sup> software.
- 4) ND Non-Detect

TDS is the sum of all dissolved solids within water and refers to any minerals, salts, metals, cations or anions dissolved in water. TDS is principally made up of calcium, magnesium, potassium, sodium, bicarbonates (alkalinity), chlorides, sulfates and some small amounts of organic matter.

# 5.0 EVIDENCE OF SSI FROM ALTERNATIVE SOURCE

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

- Southward groundwater flow from the upgradient SCPA CCR Unit, currently in Corrective Action, towards the SCPC.
- Documentation of pre-existing, low-level concentrations of CCR indicators and other parameters in groundwater that pre-date the SCPC operation, especially on the northern side of the SCPC.



- Lack of elevated FGD Indicators (sulfate, calcium, chloride) above pre-CCR placement levels in monitoring wells with SSIs.
- Construction documents of the SCPC indicating the 60-mil high-density polyethelyne (HDPE) geomembrane liner and a 2-foot thick clay barrier met quality assurance testing during construction.

## 5.1 CCR Indicators

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

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

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

Notes:

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

As described above, the SCPC historically received FGD-type wastes managed at the SEC.

## 5.2 Evaluation of the Statistically Significant Boron Exceedance at UG-2

## 5.2.1 Key Indicators for FGD Type Impacts

As displayed in **Table 3**, boron can be a key indicator of FGD impacts because it is typically present in the leachate from these types of waste, is not a common anthropogenic contaminant, and is non-reactive and mobile in most hydrogeological environments (EPRI 2012). However, boron is typically only a key indicator for unwashed gypsum, as concentrations for washed gypsum may be too low to be useful.

As a part of the EPRI 2012 report, EPRI investigated what constituents would be the most beneficial indicator parameters for FGD gypsum impacts. **Table 4** (in text) provides a further evaluation of the key FGD indicator parameters as provided in the EPRI 2012 report.



### Table 4 – Key Indicators for FGD Impacts

Constituent	Advantages and Caveats
Sulfate	High concentrations expected in both washed and unwashed FGD gypsum (EPRI, 2011a). Commonly analyzed. Very mobile in all hydrogeologic environments. Less useful in strongly reducing environments where sulfate can be reduced to hydrogen sulfide gas.
Fluoride	Mobile and non-reactive in common hydrogeologic environments. Assure that leachate concentration is higher than background, particularly for washed gypsum.
Calcium	High concentrations expected in both washed and unwashed FGD gypsum (EPRI, 2011a). Understanding of carbonate chemistry necessary to assure that precipitation or dissolution does not affect downgradient concentrations.
Boron	Mobile indicator constituent for unwashed FGD gypsum. Concentrations for washed gypsum may be too low to be useful (EPRI, 2011a).
Bromide	Mobile indicator constituent for unwashed FGD gypsum, especially if Br- PAC or CaBr used for mercury controls. Concentrations for washed gypsum may be too low to be useful (EPRI, 2011a).
Chloride	Mobile indicator constituent for unwashed FGD gypsum. Concentrations may be very high if transport water is recirculated. Concentrations for washed gypsum may be too low to be useful (EPRI, 2011a).

Notes:

1) Table from EPRI 2012, Table 3-3.

As discussed in section 3.2, the WFGD process occurs after the removal of slag and fly ash. A crushed limestone (CaCO3) mix is introduced into the boiler flue gas flow. The limestone reacts with sulfur dioxide (SO2) in the flue gas and produces 'synthetic' gypsum (calcium sulfate dihydrate (CaSO4 \* 2H2O)). When the SCPC was actively receiving CCR waste, the resultant gypsum material was wet sluiced from the plant across Highway 94 to the SCPC. Once there, the gypsum was dewatered by gravity with the sluice conveying recycled water back to the WFGD for reuse. The primary soluble constituents of the gypsum CCR are sulfate, calcium, chloride, and sodium (Gredell and Reitz & Jens, 2014). Therefore, based on the handling of FGD materials at the SCPC, and discussions from the EPRI 2012 report, it would be expected that sulfate, calcium, chloride, and sodium concentrations would increase if there were groundwater impacts caused by the SCPC. Impacts to boron, calcium, and fluoride concentrations are possible, although these constituents are expected to be secondary and not as distinct.

## 5.2.2 Concentrations of FGD Indicators at UG-2

**Figures 2-7** display time series plots of the FGD indicators (boron, sulfate, fluoride, calcium, chloride, sodium) at UG-2 compared to their respective UPLs, initial placement of FGD materials at the SCPC (7/30/2010), construction of the adjacent SCL4A (8/16/2014), and commencement of closure of the SCPC (12/14/2022). **Table 5** below provides a summary of each FGD indicator constituent, including the range of sample results prior to the placement of FGD materials at the SCPC, a UPL calculated from the constituents prior to the placement of FGD materials, the current UPL, and most recent results.

Constituent	Pre-FGD Placement Sampling Concentration Range (Prior to 7/30/2010)	Calculated UPL Based on Pre-FGD Placement	Range of Values Prior to May 2023 Sampling Event (CCR Rule and State UWL Sampling)	Current UPL (Updated March 2022)	May 2023 Result	June 2023 Result
Boron (µg/L)	148 - 322	397.1	ND (<100) - 2,180	264.7	458	291
Sulfate (mg/)	53 - 76	84.65	17.7 - 122	95.94	51.8	NS
Fluoride (mg/L)	0.21 - 0.31	0.3371	ND (<0.12) - 0.34	0.3257	ND (<0.12)	NS

#### Table 5: Summary of FGD Indicator Parameters at UG-2



Constituent	Pre-FGD Placement Sampling Concentration Range (Prior to 7/30/2010)	Calculated UPL Based on Pre-FGD Placement	Range of Values Prior to May 2023 Sampling Event (CCR Rule and State UWL Sampling)	Current UPL (Updated March 2022)	May 2023 Result	June 2023 Result
Calcium (µg/L)	122,000 - 164,000	175,535	80,500 - 164,000	146,120	115,000	NS
Chloride (mg/)	22.0 - 113	138.4	2.3 - 113	98.49	37.2	NS
Sodium (mg/L)	29.6 - 88.5	108.1	5.42 - 88.5	NA	26	NS

Notes:

1) NA – Not Applicable. No limit calculated for sodium as it is not a CCR Rule Appendix III or IV parameter.

2) NS – Not Sampled.

3) ND - non-detect. Not detected above the Method Detection Limit (MDL).

4) mg/L – milligrams per liter.

5) µg/L – micrograms per liter.

As displayed on **Figures 2 - 7** and summarized in **Table 5**, boron is the only potential FGD indicator parameter present at a level above pre-FGD placement values. Concentrations for the other FGD indicator parameters, including the key FGD indicator parameters of sulfate, calcium, and chloride are at or below pre-FGD placement levels. The lack of increased sulfate, calcium, chloride, and sodium concentrations at UG-2 indicates that a source other than the FGD at the SCPC is the cause of the SSI at UG-2.

### 5.2.3 Evaluation for Cause of Elevated Boron Concentrations at UG-2

In 2018, an ASD was completed for the SCPB (fly ash pond) unit to the north/northwest of the SCPC and is available in the 2018 Annual Report for the SCPB on Ameren's publicly available website<sup>1</sup>. In that ASD, pore-water samples were collected from the SCPA and SCPB, and samples were collected in the shallow, intermediate (middle) and deep zones of the alluvial aquifer just outside of the two units. From this ASD, it was determined that CCR impacts found directly outside of the SCPB are from the SCPA and not the SCPB. Impacts were present at their highest concentrations at deeper depths, and groundwater chemistry was similar between the waters of the SCPA and the impacted wells. The SCPB ASD concluded these deeper impacts are from the SCPA because the SCPA is an unlined CCR unit that extends approximately 70 feet below ground surface, while the SCPB is an HDPE-lined, shallower CCR unit. Therefore, if impacts were from the SCPA, they would be present across all zones of the alluvial aquifer. Additionally, the SPCA has historically managed bottom ash, fly ash, and boiler slag. As displayed in **Table 2**, boron is a key indicator parameter for impacts from these types of CCR.

In 2018 and 2019, the SCPA moved from Assessment Monitoring into Corrective Action and an investigation into the nature and extent of impacts from the SCPA was completed. As a part of this investigation, samples were collected in the shallow, middle, and deep zones of the alluvial aquifer in multiple locations around the site. One set of piezometers (TP-5) was installed approximately 200 feet to the east of UG-2. In the TP-5 piezometers, boron concentrations ranged from 211-263  $\mu$ g/L in the shallow zone of the alluvial aquifer, 3,120-3,190  $\mu$ g/L in the intermediate zone and 5,460-8,250  $\mu$ g/L in the deep zone of the alluvial aquifer.

This increase in boron concentration with depth at TP-5 is indicative of impacts from the SCPA rather than the SCPB, SCPC or SCL4A because the SCPA is unlined and extends downward 70 feet below ground surface, whereas the SCPB, SCPC and SCL4A are constructed with liner systems with base elevations above the natural groundwater table. If impacts were from the SCPC, the greatest impacts would be expected in the shallow zone of the alluvial aquifer and would dilute and be expected to decrease with depth. Results from the nature and extent and corrective action investigations further indicate that impacts in the alluvial aquifer at the SEC are from the SCPA and not the other lined units.

For boron impacts to be from the SCPA, UG-2 would need to be hydraulically connected to the SCPA. As displayed on **Figure 1**, UG-2 is located approximately 1,500 feet to the south/southeast of the SCPA at its nearest

<sup>(</sup>https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion/ccr-compliance-reports)



<sup>&</sup>lt;sup>1</sup> Ameren's publicly available CCR reporting website is available at:

point. As discussed in the Annual Reports for the SCPC, publicly available on Ameren's website, groundwater flow direction within the uppermost aquifer is dynamic and influenced by seasonal changes in the water level in the adjacent Mississippi and Missouri Rivers, which affect water levels, gradients and flow directions in the aquifer. Groundwater in the alluvial aquifer will generally flow from the higher of the two rivers toward the lower elevation river. Water flows into and out of the alluvial aquifer as a result of fluctuating river water levels that produce "bank recharge" and "bank discharge" conditions. At this facility, groundwater can flow north or south toward the Mississippi and Missouri Rivers, depending on river levels.

River level elevations for the site can be estimated using nearby United State Geological Survey (USGS) gauges. Four nearby gauges are used to calculate the approximate river level of the Mississippi and Missouri Rivers at the SEC:

- Grafton Illinois gauge on the Mississippi (USGS #05587450).
- Alton Illinois gauge on the Mississippi River (USGS # 05587500)
- St. Louis Missouri gauge on the Mississippi River (USGS #07010000)
- St. Charles Missouri gauge on the Missouri River (USGS #06935965)

A daily water gauge measurement is available for each of these four gauges since at least November 15, 1986. **Figure 8** summarizes the calculated Missouri and Mississippi River data at the plant. The Mississippi River level at the SEC is controlled by a series of locks and dams, with the nearest one being approximately 6 miles downriver at the Mel Price Alton Lock and Dam. This dam controls the river elevation on the Mississippi River near the SEC, minimizing impacts from flooding and drought and giving the Mississippi River a more consistent elevation, as displayed on **Figure 8**. The Missouri River does not have any dams located near the SEC, with the closest dam on the Missouri River being the Gavins Point Dam, located near Yankton, South Dakota. Therefore, the Missouri River is susceptible to larger variations in elevation caused by flooding and drought, as displayed in **Figure 8**.

**Figure 9** displays the difference between the Mississippi and Missouri River for each day. **Table 6** provides a summary comparison of the Mississippi and Missouri River elevations at the plant. Using the data from January 1, 1987 to November 9, 2023, the Mississippi River was higher than the Missouri River on 7,472 of the 13,462 days (approximately 56% of the time). Since 2021, the hydraulic gradient between the rivers has been higher, with 2023 on pace to be the second highest gradient of southward groundwater flow since 1987 (2006 was the highest). This indicates that UG-2, which is south of the SCPA, is downgradient of the unit and hydraulically connected.

This southward flow of groundwater since 2021 has been confirmed by onsite water level measurements. Prior to each sampling event, water levels are taken at all monitoring wells to determine groundwater flow rates and direction. Potentiometric surface maps generated from these water level measurements display a southward flow of groundwater from the SCPA toward UG-2 since 2021.

Year	Days Missouri River has Higher Elevation	Days Mississippi River has Higher Elevation	Average Annual Difference between Mississippi and Missouri Rivers (Results in Feet, number displays Mississippi River Elevation minus the Missouri River Elevation. Negative results indicate higher Missouri River, positive results indicate higher Mississippi River elevation)
1987	243	122	-1.38
1988	82	284	1.48
1989	41	324	2.24
1990	162	203	0.32
1991	92	273	1.34
1992	152	214	-0.20
1993	355	10	-3.05

#### Table 6 – Summary of Mississippi and Missouri River Elevations



Year	Days Missouri River has Higher Elevation	Days Mississippi River has Higher Elevation	Average Annual Difference between Mississippi and Missouri Rivers (Results in Feet, number displays Mississippi River Elevation minus the Missouri River Elevation. Negative results indicate higher Missouri River, positive results indicate higher Mississippi River elevation)
1994	166	199	-1.17
1995	269	96	-1.62
1996	242	124	-0.98
1997	312	53	-1.70
1998	317	48	-2.21
1999	207	158	-1.15
2000	28	338	2.30
2001	133	232	0.66
2002	63	302	2.18
2003	28	337	3.12
2004	125	241	1.08
2005	88	277	1.91
2006	11	354	4.05
2007	141	224	0.71
2008	209	157	-0.29
2009	202	163	-0.32
2010	296	69	-1.79
2011	229	136	-1.58
2012	59	307	2.15
2013	51	314	2.46
2014	88	277	1.54
2015	177	188	-0.36
2016	196	170	-0.55
2017	154	211	0.46
2018	232	133	0.03
2019	349	16	-3.08
2020	234	132	-0.72
2021	160	205	0.31
2022	77	288	2.39
2023	20	293	3.14
Total	5990	7472	Average Difference – 0.32 feet

# 5.3 Evaluation of the Statistically Significant Increases of Sulfate and Total Dissolved Solids at DG-3

## 5.3.1 Evaluation of Sulfate SSI at DG-3

As described in **Table 4**, sulfate, along with calcium, chloride, and sodium are the key indicator parameters for FGD impacts at the SCPC. Sulfate is a key indicator for potential FGD impacts because high concentrations are expected in both washed and unwashed FGD and it is highly mobile in most hydrogeological environments, except where conditions are strongly reducing. The groundwater around the SCPC does not demonstrate strongly reducing conditions, such as negative oxidation reduction potential (ORP) and dissolved iron concentrations above 1 mg/L. No hydrogen sulfide odors have been reported at the SCPC.



As displayed on **Figure 10**, prior to placement of FGD materials in the SCPC, sulfate concentrations at DG-3 ranged from 57 to 75 mg/L. Using these 9 sampling results, the pre-FGD UPL is 78.01 mg/L, which is greater than the May 2023 sampling result of 76.3 mg/L and the subsequent July 2023 verification sampling result of 75.8 mg/L.

The time series plot on **Figure 11** shows the high degree of variability in sulfate concentrations at the DG-xx wells used to monitor the southern side of the SCPC since the onset of monitoring (DG-1, DG-2, DG-3, and DG-4). This figure provides further evidence that the sulfate values from May and July 2023 at DG-3 reflect the geochemical variability within the groundwater and they are not elevated compared to pre-FGD placement sulfate concentrations in the area. Three other compliance monitoring wells are located within approximately 900 feet to the east and west of DG-3 as displayed in **Figure 1**, which are DG-1, DG-2, and DG-4. Sulfate concentrations in these monitoring wells ranged from 36 to 83 mg/L prior to the placement of FGD in the SCPC and UPLs for these monitoring wells using pre-FGD placement values are 88.91 mg/L for DG-1, 71.26 mg/L for DG-2, 83 mg/L for DG-4, and 84.59 mg/L for an interwell combined UPL using DG-1, DG-2, DG-3 and DG-4. Based on the sulfate concentration range of the nearby wells, the sulfate concentration in DG-3 for May 2023 is within the range of historical concentrations for adjacent wells prior to the placement of FGD materials.

If FGD materials are causing impacts at DG-3, it would be expected that chloride and calcium concentrations would also be increasing along with sulfate concentrations. As displayed in **Figures 12 and 13**, concentrations for calcium and chloride are at or below pre-FGD placement levels. The lack of increased calcium and chloride concentrations at DG-3 indicates that a source other than the FGD at the SCPC is likely the cause of the sulfate SSI at DG-3. The lines of evidence listed above indicate that the sulfate SSI at DG-3 in May 2023 is not the result of a release from the SCPC, but instead can be attributed to geochemical variability in the alluvial aquifer.

# 5.3.2 Elevated Total Dissolved Solids (TDS) at DG-3

TDS alone is not a key indicator of CCR or FGD (EPRI 2017, EPRI 2012). As displayed on **Figure 14**, concentrations for the May 2023 and subsequent August 2023 verification sampling event are 640 and 665 mg/L, respectively. These values are just above the original calculated UPL used for TDS concentrations at DG-3 of 580 mg/L and the current UPL of 592.9 mg/L.

To further investigate the geochemical variability of TDS in the UWL area, the historical data from the state UWL wells (located on the south side of the SCPC, outside of the interpreted zone of impact form the SCPA) were reviewed. These UWL wells (labeled "DG-xx") were installed and sampled on at least 9 occasions prior to the receipt of FGD in the SCPC. These DG-xx monitoring wells are screened at approximately the same depth as DG-3 in the shallow zone of the alluvial aquifer. **Figure 15** displays a box and whisker plot of the TDS concentrations for the DG-xx wells prior to the receipt of FGD in the SCPC, which represents natural variability in local groundwater chemistry. Using all pre-disposal data from the twelve DG-xx wells, the non-parametric UPL for TDS is 678 mg/L. As displayed in **Figure 15**, the May 2023 and August 2023 sampling results are within the pre-FGD limits using the monitoring wells near DG-3 and display that the May 2023 and August 2023 results are within the historical range (290 – 678 mg/L) for the site.

As discussed above, the majority of TDS is made up of calcium, magnesium, sodium, potassium, chloride, sulfate, and alkalinity concentrations. **Table 7** displays the concentrations of each of these constituents collected during semi-annual detection monitoring sampling events since November 2018 at DG-3.

Sample Date	Total Sodium (mg/L)	Total Potassium (mg/L)	Total Calcium (mg/L)	Total Magnesium (mg/L)	Total Chloride (mg/L)	Total Alkalinity (mg/L)	Total Sulfate (mg/L)
11/13/2018	4.42	5.12	137	29.5	9.1	432	64.7
8/19/2019	4.68	6.47	148	39.1	4.8	450	49.5
11/14/2019	4.78	6.70	144	38.1	5.4	447	51.1
4/28/2020	4.60	5.22	134	28.5	5.5	412	52.8
11/17/2020	5.54	6.58	160	38.4	3.8	451	41.0
4/14/2021	4.47	5.03	143	29.1	5.9	405	60.9

#### Table 7 – Total Dissolved Solids Major Constituent Concentrations over Time at DG-3



Sample Date	Total Sodium (mg/L)	Total Potassium (mg/L)	Total Calcium (mg/L)	Total Magnesium (mg/L)	Total Chloride (mg/L)	Total Alkalinity (mg/L)	Total Sulfate (mg/L)
11/10/2021	5.18	5.76	146	32.5	2.7 J	419	46.8
4/1/2022	5.15	6.15	163	28.3	8.5	460	63.9
10/21/2022	5.29	6.05	162	36.8	3.3	455	63.8
5/3/2023	4.83	5.63	159	35.6	6.9	480	76.3
Average Concentration	4.89	5.87	150	33.6	5.6	441	57.1
May 2023 Ranking	5th	7th	4th	5th	3 <sup>rd</sup>	1st	1st

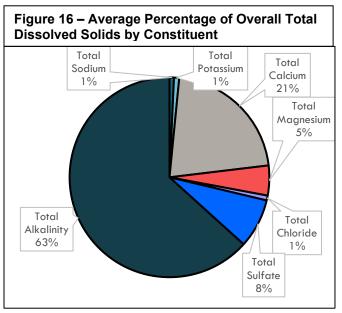
Notes:

1) Alkalinity is equal to Carbonate + Bicarbonate.

2) mg/L – Milligrams per liter.

3) J – value is estimated.

As displayed in Figure 16, based on average concentrations in Table 4, alkalinity, calcium, and sulfate concentrations make up approximately 92% of the total TDS value at DG-3. In the May 2023 sampling event, the alkalinity result was the highest of the 10 results since November 2018, calcium was 4<sup>th</sup> highest of the 10 results, and sulfate was highest of the 10 available results. As discussed previously, sulfate and calcium are primary indicators of FGD CCR impacts. Alkalinity is not considered a key indicator and accounts for 63% of TDS at DG-3, on average. The high alkalinity concentration at DG-3 in May 2023 relative to previous samples is the primary contributor to the elevated TDS observed, with a value 39 mg/L greater than average. The increased sulfate concentration at DG-3 is attributed to natural variability in groundwater chemistry, detailed above in Section 5.3.1. The May 2023 calcium result is within the range of previous results. Altogether, this indicates that the slightly elevated TDS value at DG-3 is primarily driven



by increased alkalinity, which is not a key indicator of FGD CCR impacts. Geochemical variability in sulfate and calcium concentrations also contributes to the elevated TDS in May 2023.

The lack in increasing FGD indicators from prior to CCR placement with those present in the May 2023 sampling event and presence of TDS within the range of nearby wells and historical values demonstrates that TDS is within the pre-FGD placement range of concentrations for the aquifer in this area and not caused by impacts originating from the SCPC.

# 6.0 DEMONSTRATION THAT SSI WAS NOT CAUSED BY SCPC IMPACTS

Based on the information presented in Section 5.0 above, the SSIs reported for UG-2 and DG-3 during the May 2023 monitoring event are not a result of impacts from the SCPC. The SSI for boron at UG-2 is not caused by the SCPC as there is a lack of increasing key FGD parameters including sulfate, chloride and calcium. The SSI for boron at UG-2 appears to be the result of southward migrating impacts from the upgradient SCPA, which is currently in Corrective Action. The SSIs for sulfate and TDS at DG-3 were also not caused by impacts from the SCPC. These SSIs are the result of numerous factors including (1) relatively low calculated UPLs that do not



account for the geochemical variability present, (2) the concentrations are within the range of historical concentrations for adjacent wells prior to the placement of FGD materials, and (3) naturally occurring higher alkalinity, sulfate and calcium concentrations causing slightly elevated TDS values that have not yet been captured during post-FGD placement sampling at DG-3. Along with these lines of evidence listed above, the SCPC is documented to be constructed with an engineered compacted clay liner overlain by a 60-mil HDPE geomembrane liner system, which was designed and constructed to properly contain CCR and prevent groundwater impacts.

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# Tables



# Table 1 May 2023 Detection Monitoring Results SCPC Surface Impoundment Sioux Energy Center, St. Charles County, MO

		BACKGR	OUND					GROL	JNDWATER M	IONITORING W	/ELLS				
ANALYTE	UNITS	BMW-1S	BMW-3S	Prediction Limit UG-1A	UG-1A	Prediction Limit UG-2	UG-2	Prediction Limit DG-1	DG-1	Prediction Limit DG-2	DG-2	Prediction Limit DG-3	DG-3	Prediction Limit DG-4	DG-4
						May 2023 D	etection Mon	itoring Event							
DATE	NA	5/2/2023	5/2/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023	NA	5/3/2023
рН	SU	6.80	6.95	6.423-7.284	6.95	6.29-7.36	7.09	6.653-7.324	6.95	6.681-7.341	6.98	6.64-7.251	6.90	6.617-7.24	6.90
BORON, TOTAL	μg/L	64.8 J	67.1 J	462.2	89.9 J	264.7	458	118.8	96.9 J	114.3	75.5 J	103.9	83.6 J	114.5	91.4 J
CALCIUM, TOTAL	μg/L	184,000	137,000	204,191	138,000	146,120	115,000	174,000	129,000	161,503	126,000	168,024	159,000	167,122	139,000
CHLORIDE, TOTAL	mg/L	13.1	12.6	147.5	79.9	98.49	37.2	10	3.6	10.72	2.8	17.71	6.9	111.7	25.4
FLUORIDE, TOTAL	mg/L	ND	ND	0.4	ND	0.3257	ND	0.3803	ND	0.4553	ND	0.4775	ND	0.4524	ND
SULFATE, TOTAL	mg/L	37.7	32.4	115.8	49.4	95.94	51.8	71.52	29.5	68	28.4	72.94	76.3	80.26	56.9
TOTAL DISSOLVED SOLIDS	mg/L	610	495	810.6	622	758	496	548.8	499	537.9	481	592.9	640	808	601
						July 2023 V	erification Sar	npling Event							
DATE	NA						7/11/2023						7/11/20238		
рН	SU														
BORON, TOTAL	μg/L						291								
CALCIUM, TOTAL	μg/L														
CHLORIDE, TOTAL	mg/L														
FLUORIDE, TOTAL	mg/L														
SULFATE, TOTAL	mg/L												75.8		
TOTAL DISSOLVED SOLIDS	mg/L												665		

NOTES:

1. Unit Abbreviations:  $\mu g/L$  - micrograms per liter, mg/L - milligrams per liter, SU - standard units.

2. J - Result is an estimated value.

3. NA - Not applicable.

4. Prediction Limits calculated using Sanitas Software.

5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).

6. Only analytes/wells that were detected above the prediction limit were tested during Verification Sampling.

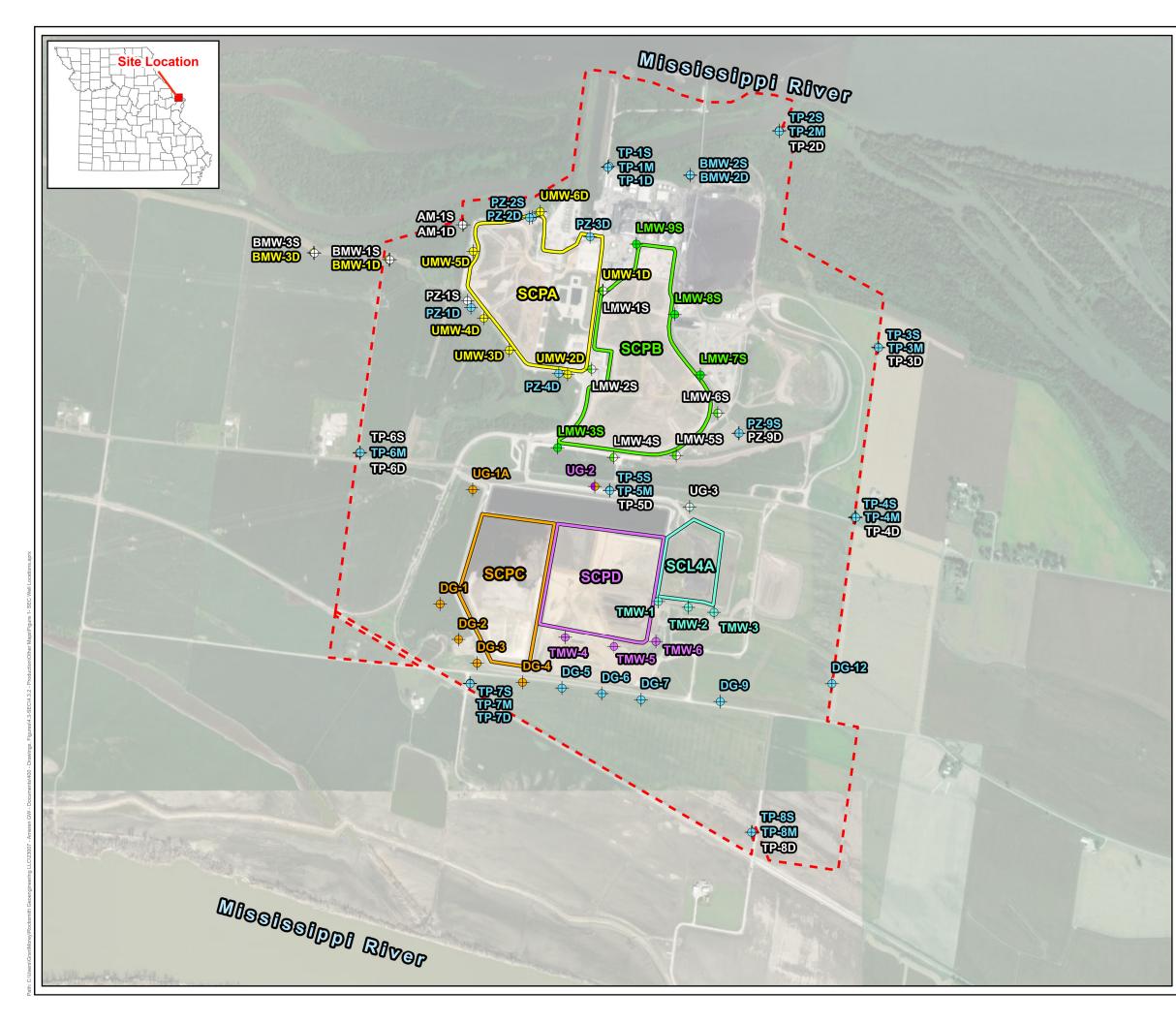
7. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

8. Total Dissolved Solids sample at DG-3 collected on 8/1/2023.

Prepared By: GTM Checked By: JSI Reviewed By: MNH

# Figures





# SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

#### Legend

	-
CD	Sioux Energy Center Property Boundary
CCR	Units
	SCPA - Bottom Ash Surface Impoundment (Closed)
	SCPB - Fly Ash Surface Impoundment (Closed)
Utilit	y Waste Landfill Cells
	SCL4A - Dry CCR Disposal Area
	SCPC - Inactive FGD Surface Impoundment (Closure in Progress)
	SCPD - FGD Surface Impoundment
Moni	toring Well Networks
$\oplus$	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
<b>+</b>	SCPD Detection Monitoring Well
4	SCI 4A and Corrective Action Monitoring Well

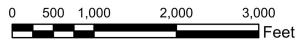
- $\oplus$ SCL4A and Corrective Action Monitoring Well
- $\blacklozenge$ SCL4A Detection Monitoring Well
- $\blacklozenge$ Monitoring Well Used for Water Level Elevation Measurements Only

#### NOTES

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

#### REFERENCES

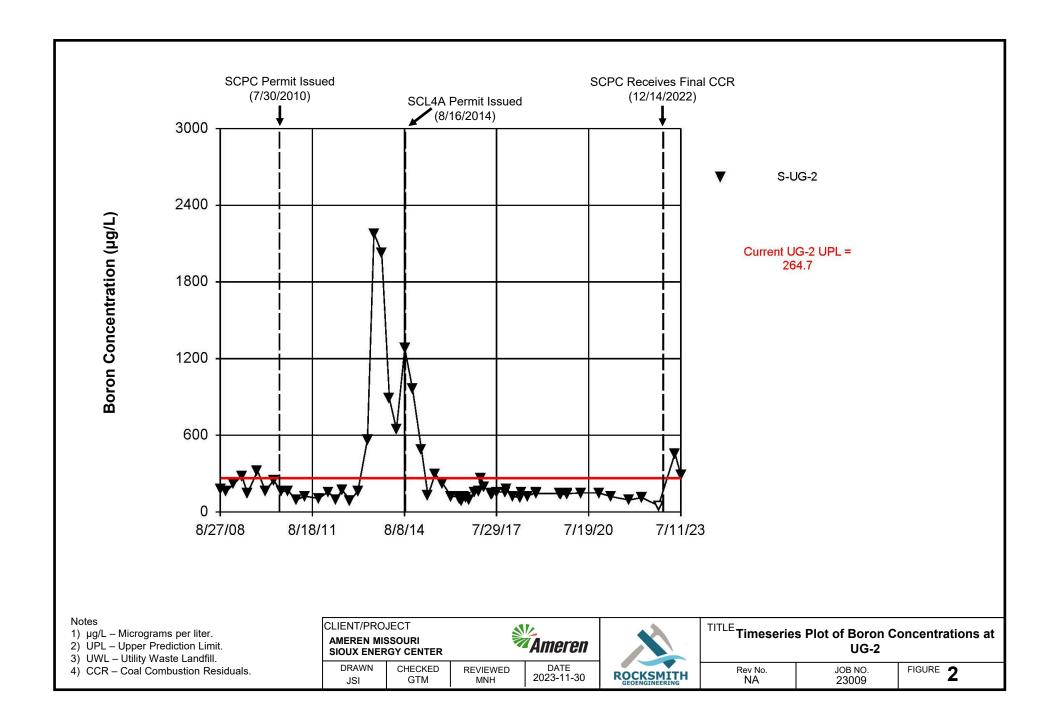
1. Ameren Missouri Sioux Energy Center, Sioux Property Control Map, February 2011.

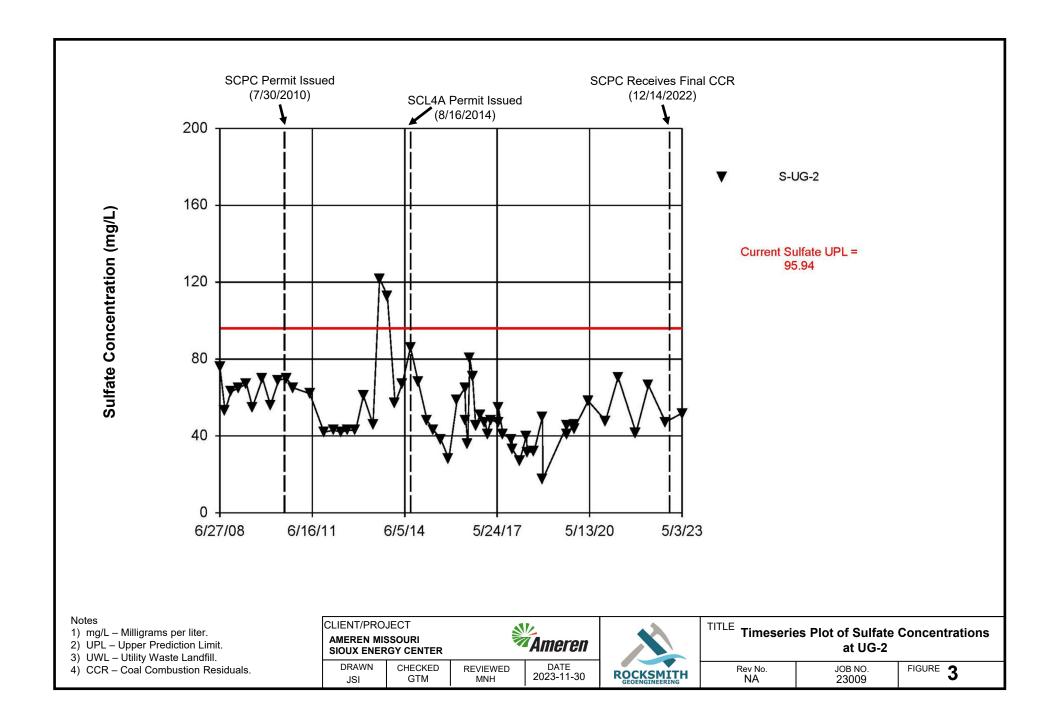


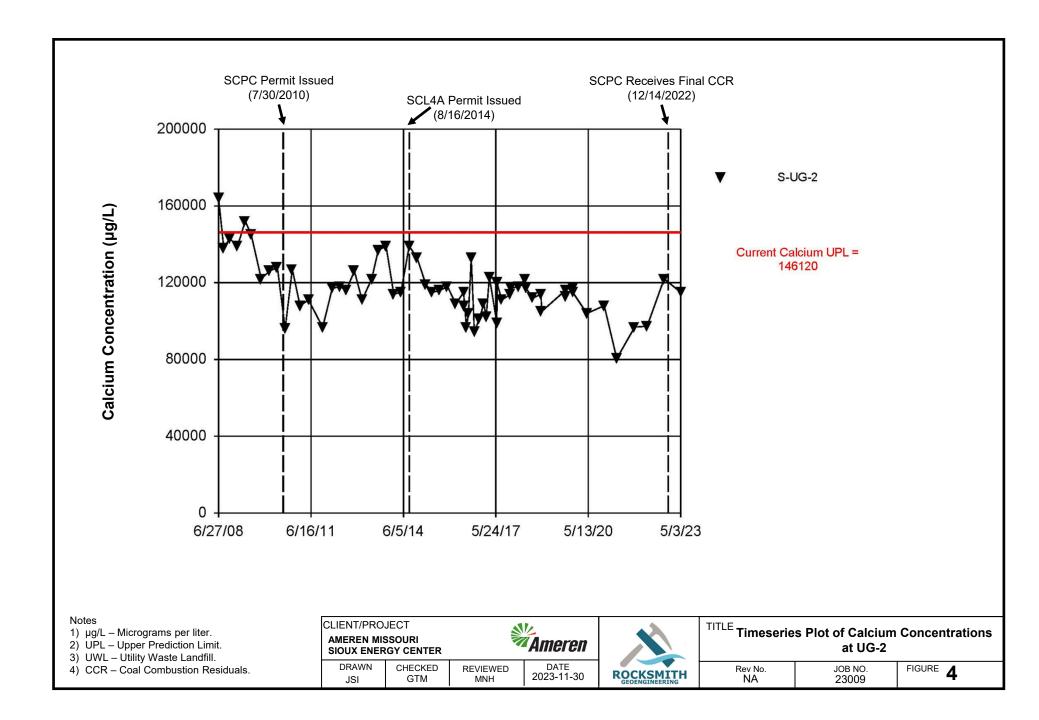
#### PROJE

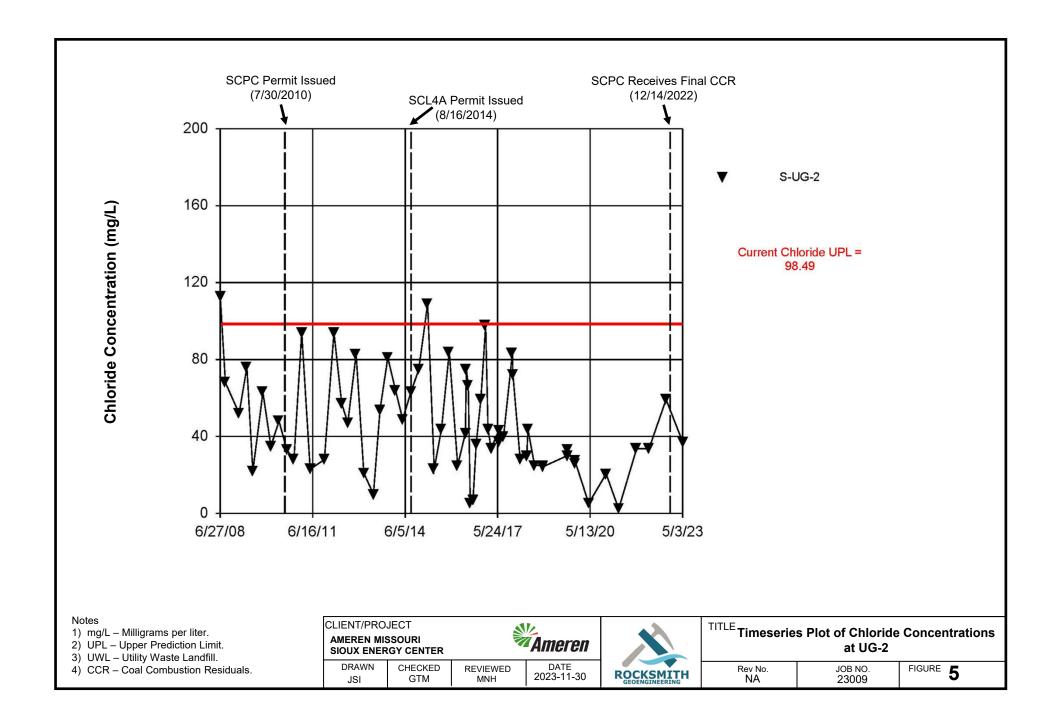
CCR RULE GROUNDWATER MONITORING PROGRAM

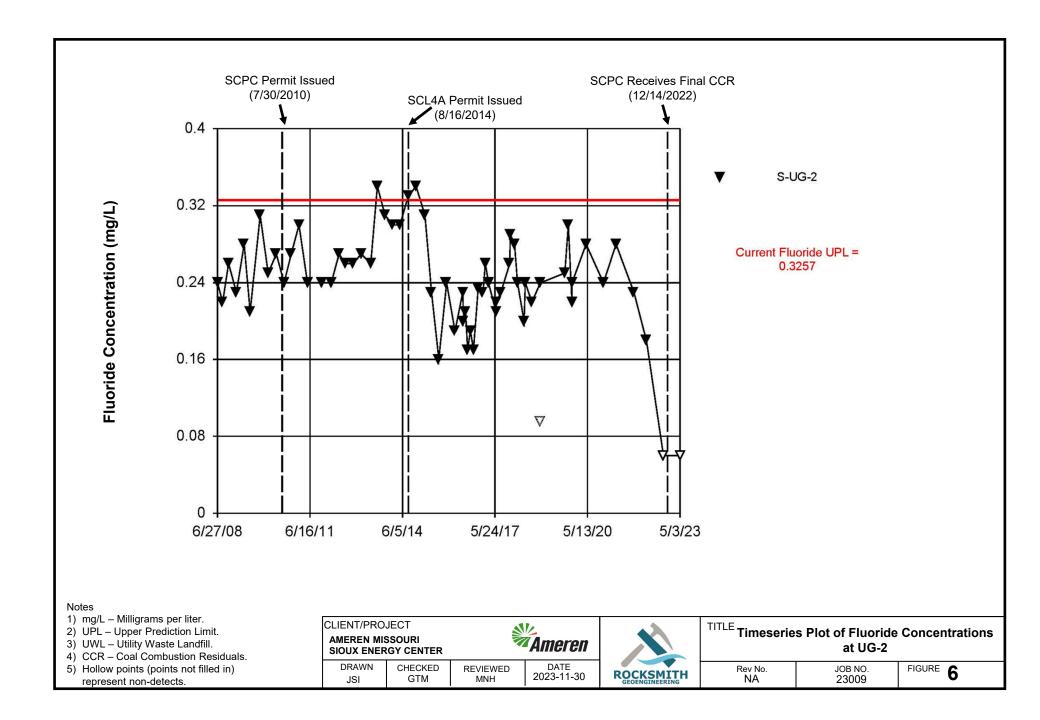
CLIENT AMEREN MISSOURI SIOUX ENERGY CENTI	ER		<b>Ameren</b>
	DESIGN	JSI	YYYY-MM-DD 2023-03-29
	PREPARED	JSI	PROJECT No. 23009
	REVIEW	GTM	
	APPROVED	MNH	FIGURE 1

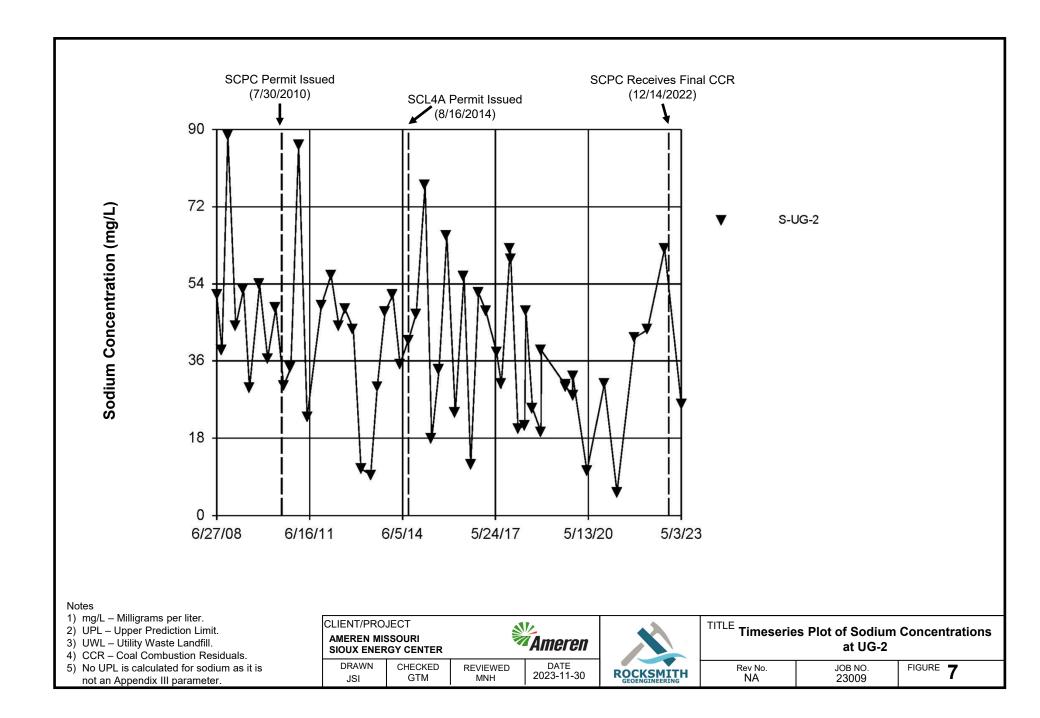


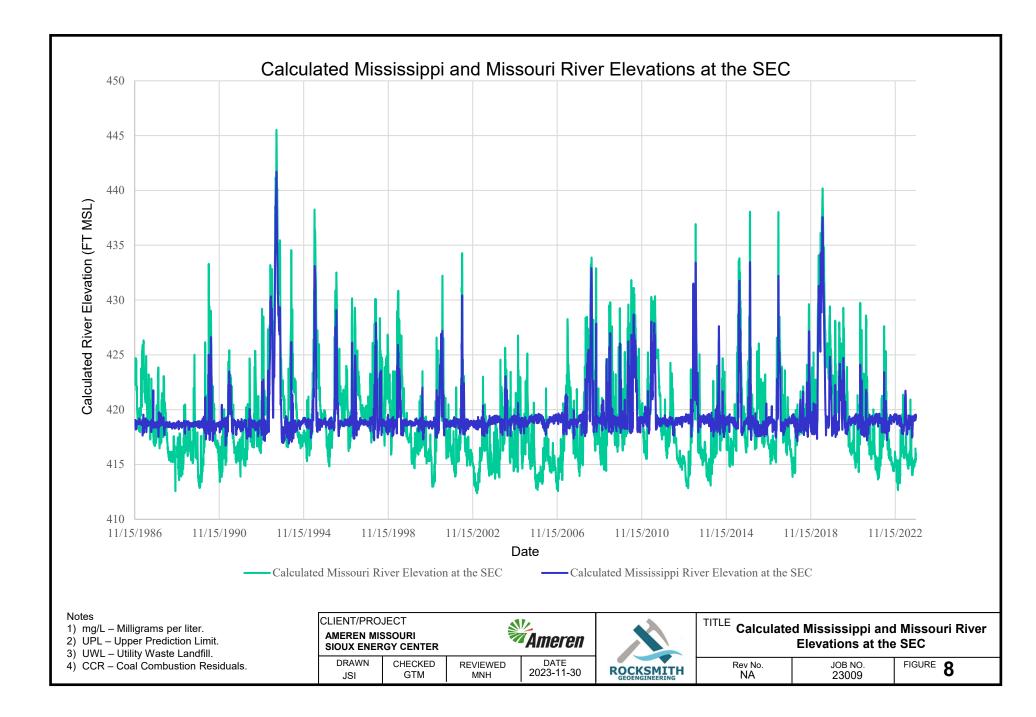


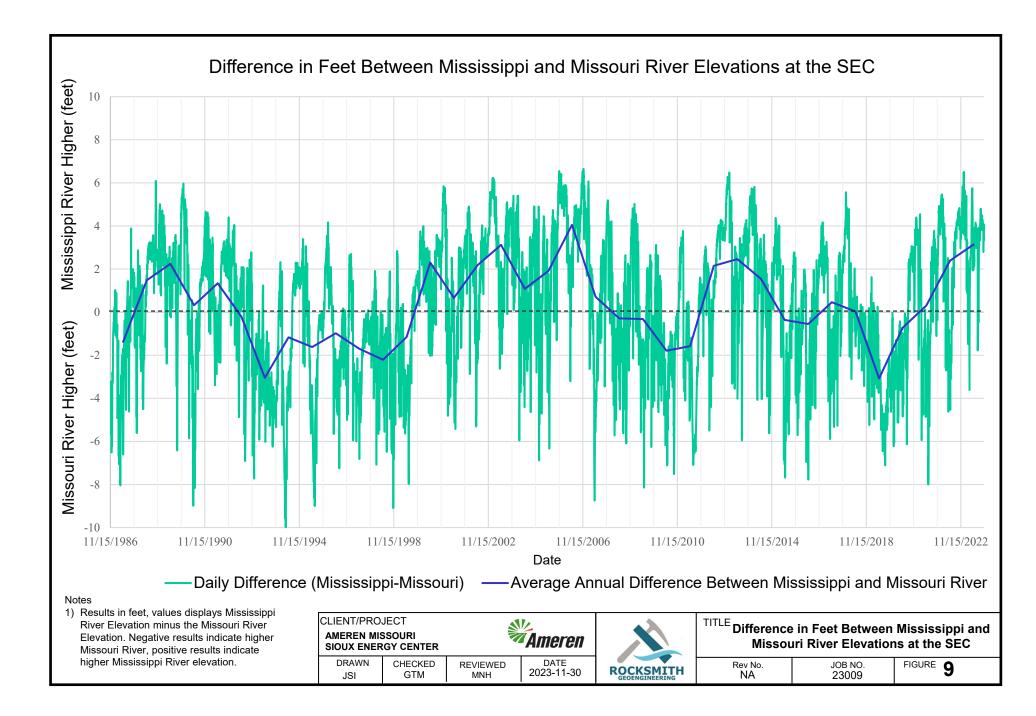


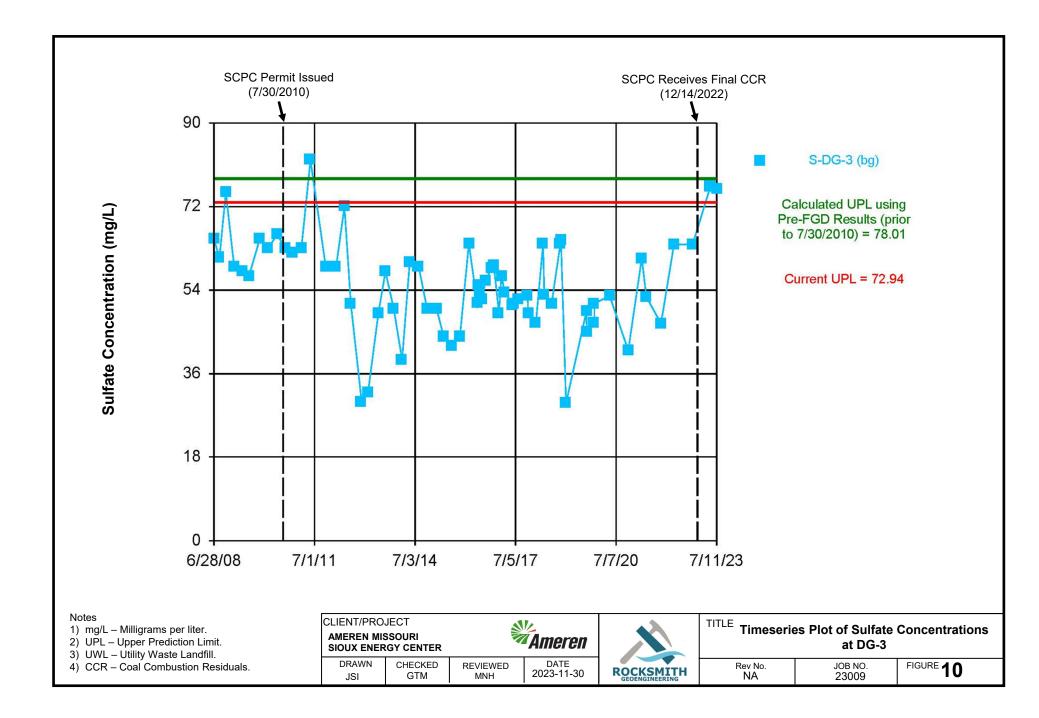


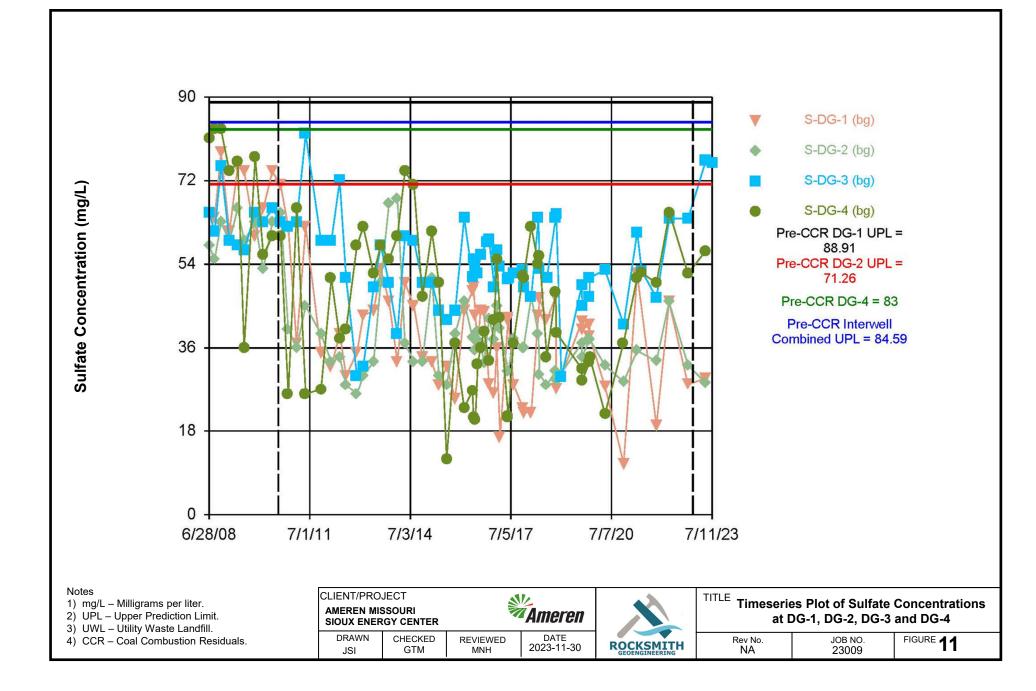


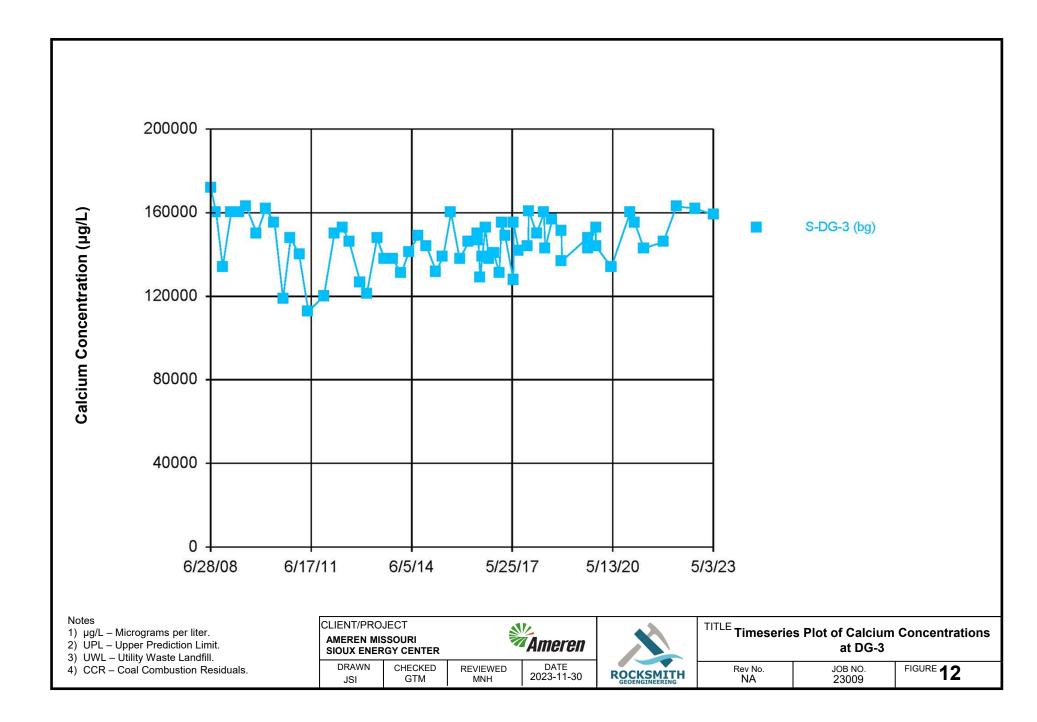


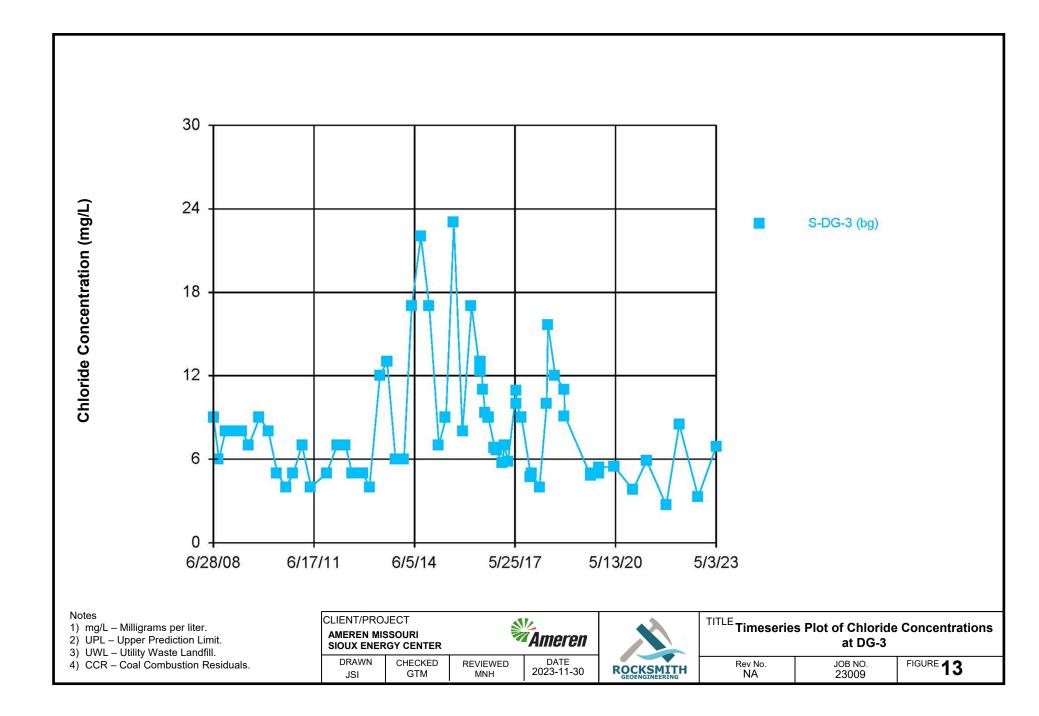


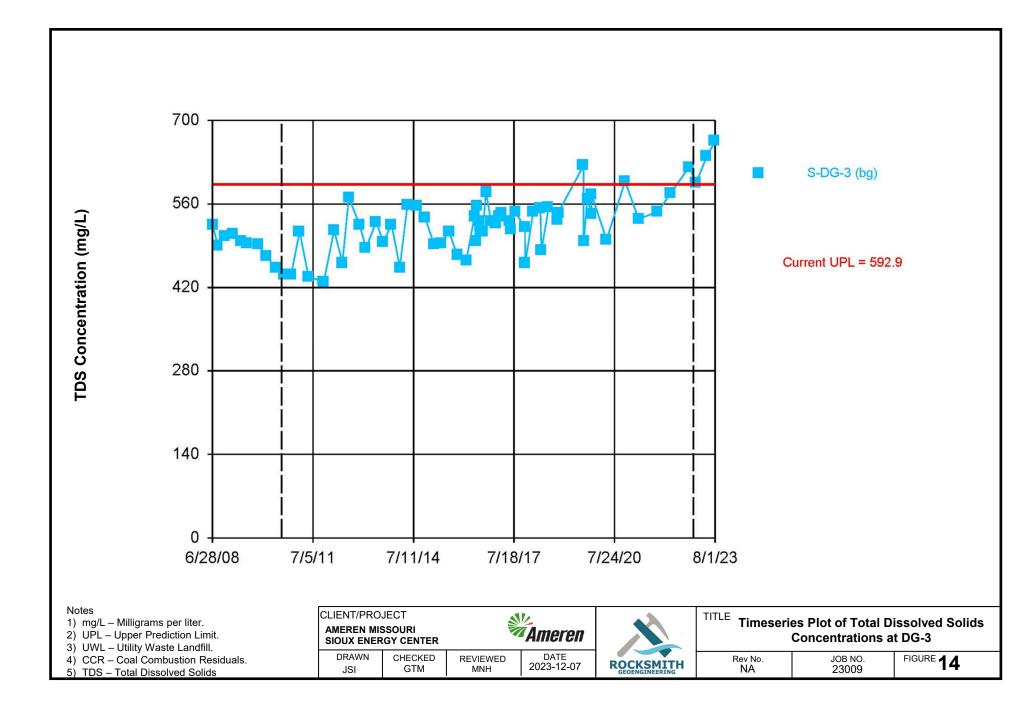


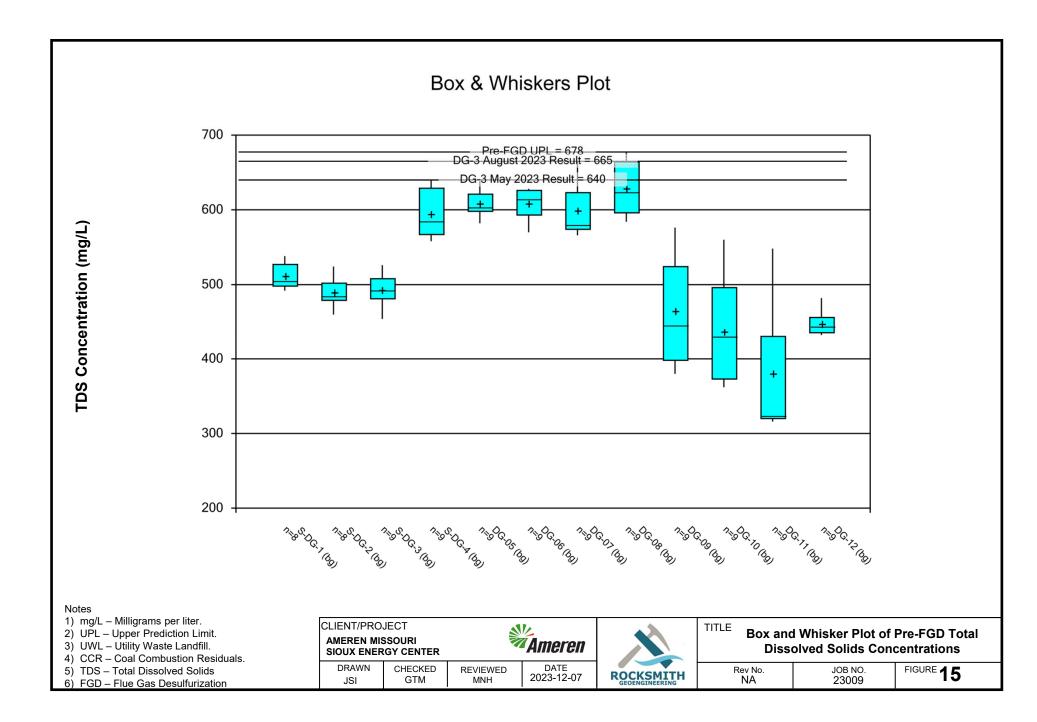






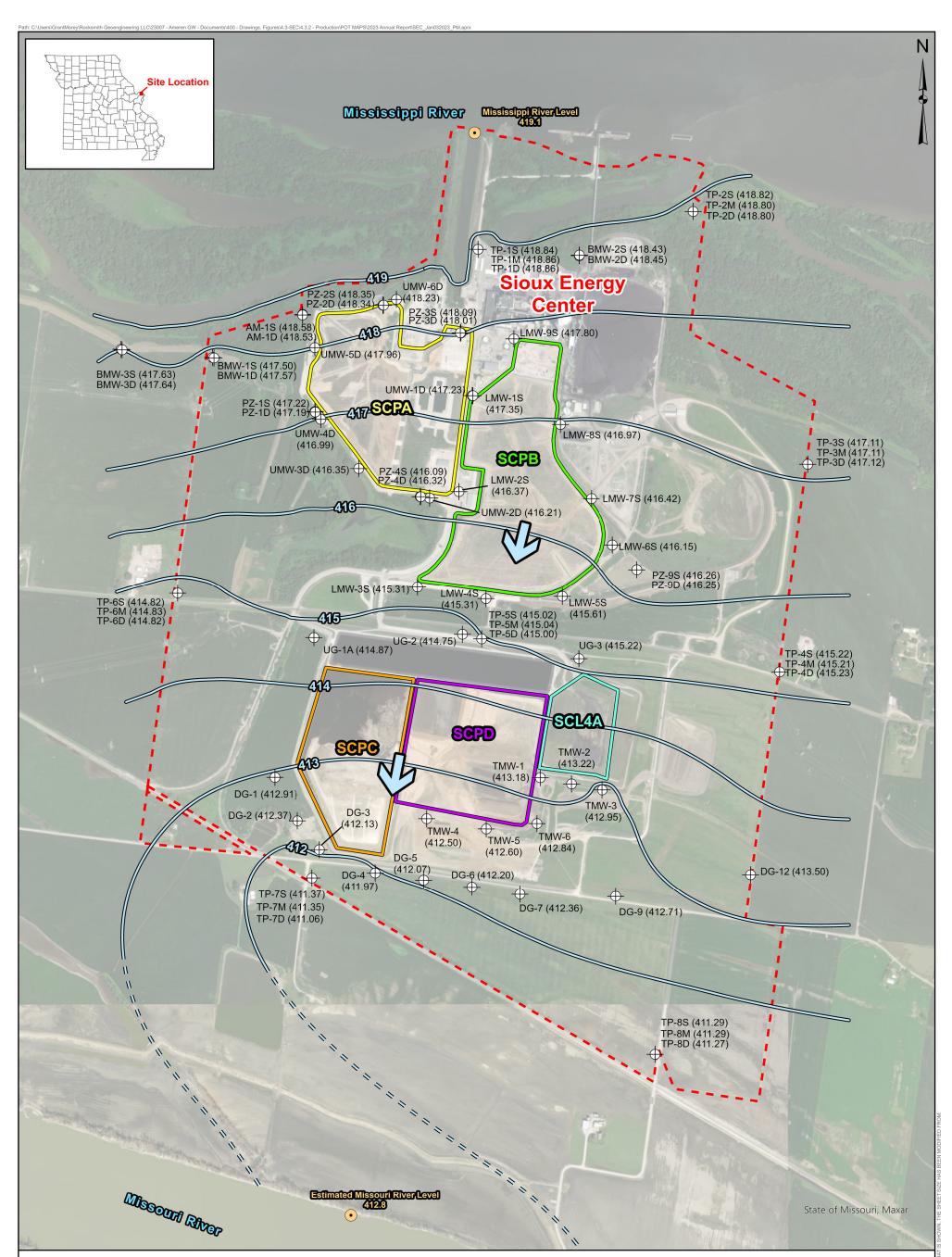






# Appendix D 2023 Potentiometric Surface Maps





#### LEGEND

Sioux Energy Center Property Boundary 0.0

#### CCR Units



- - SCPB Fly Ash Surface Impoundment (Closed)

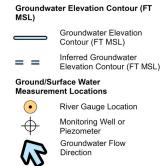
SCPA - Bottom Ash Surface Impoundment (Closed)

SCPC - WFGD Surface Impoundment (Closure in Progress)



SCL4A - Dry CCR Disposal Area

SCPD - FGD Surface Impoundment



#### NOTES

- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE. 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET
- GROUNDWATER AND SOURACE WATER ELEVATIONS DISPLATED IN FE ABOVE MEAN SEA LEVEL (FT MSL).
   GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY WSP.
   MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
   MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
   FGD FLUE GAS DESULFURIZATION.

#### REFERENCES

0

- 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).

Feet

500 1,000 1,500 2,000

#### TITLE

## **JANUARY 3, 2023 POTENTIOMETRIC** SURFACE MAP

PROJECT

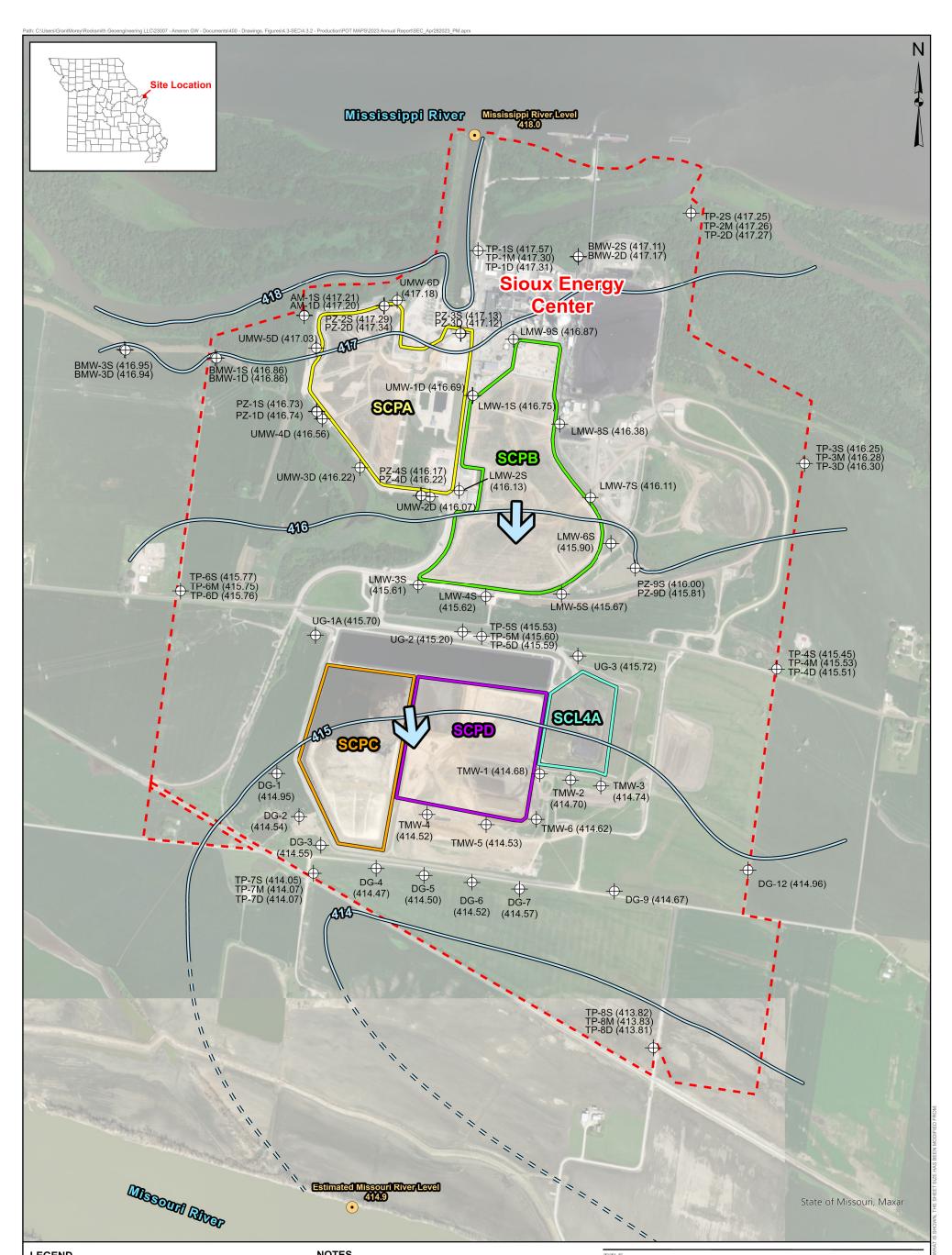
CCR GROUNDWATER MONITORING PROGRAM

CLIENT AMEREN MISSOURI SIOUX ENERGY CENTER



<b>Ameren</b>	

APPROVED	MNH	FIGUR	E D1
REVIEW	JSI		
PREPARED	GTM	PROJECT No.	23009
DESIGN	GTM	YYYY-MM-DD	2023-08-21



#### LEGEND

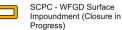
Sioux Energy Center Property Boundary 12.2

#### CCR Units

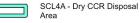
_	 	_

- - SCPB Fly Ash Surface Impoundment (Closed)

SCPA - Bottom Ash Surface Impoundment (Closed)







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** $oldsymbol{eta}$ River Gauge Location Monitoring Well or $\oplus$ Piezometer

Direction

3

Groundwater Flow

## NOTES

0

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE. 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLATED IN PEET ABOVE MEAN SEA LEVEL (FT MSL).
 GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH.
 MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
 MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
 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).

500 1,000 1,500 2,000

#### TITLE

## **APRIL 28, 2023 POTENTIOMETRIC SURFACE** MAP

CCR GROUNDWATER MONITORING PROGRAM

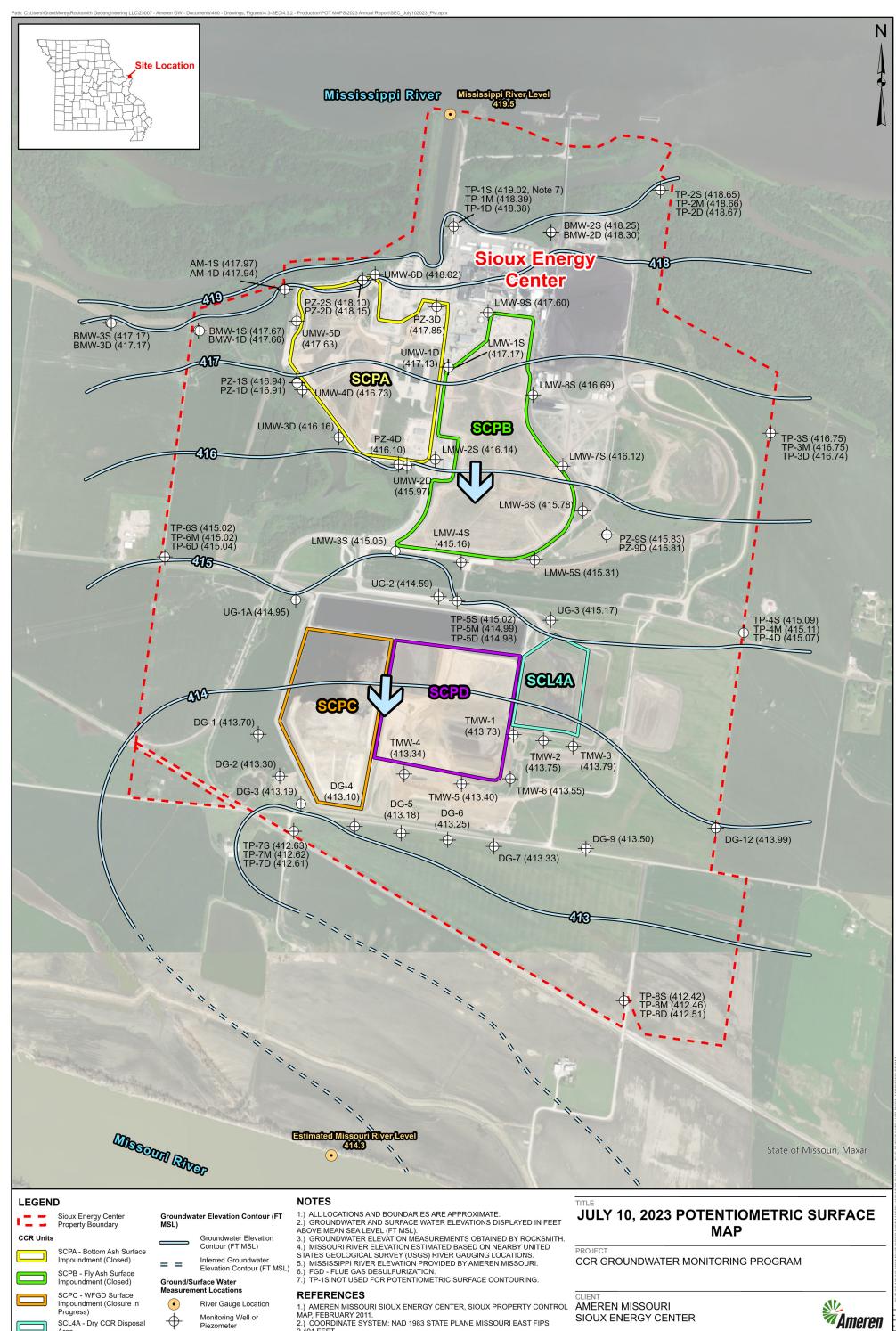
#### CLIENT AMEREN MISSOURI SIOUX ENERGY CENTER



<b>Ameren</b>
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APPROVED	MNH	FIGUR	EDZ
REVIEW	JSI		
PREPARED	GTM	PROJECT No.	23009
DESIGN	GTM	YYYY-MM-DD	2023-08-23





Monitoring Well or  $\oplus$ Piezometer

3

SCL4A - Dry CCR Disposal

SCPD - FGD Surface

Impoundment

Area

#### Groundwater Flow Direction

- 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).

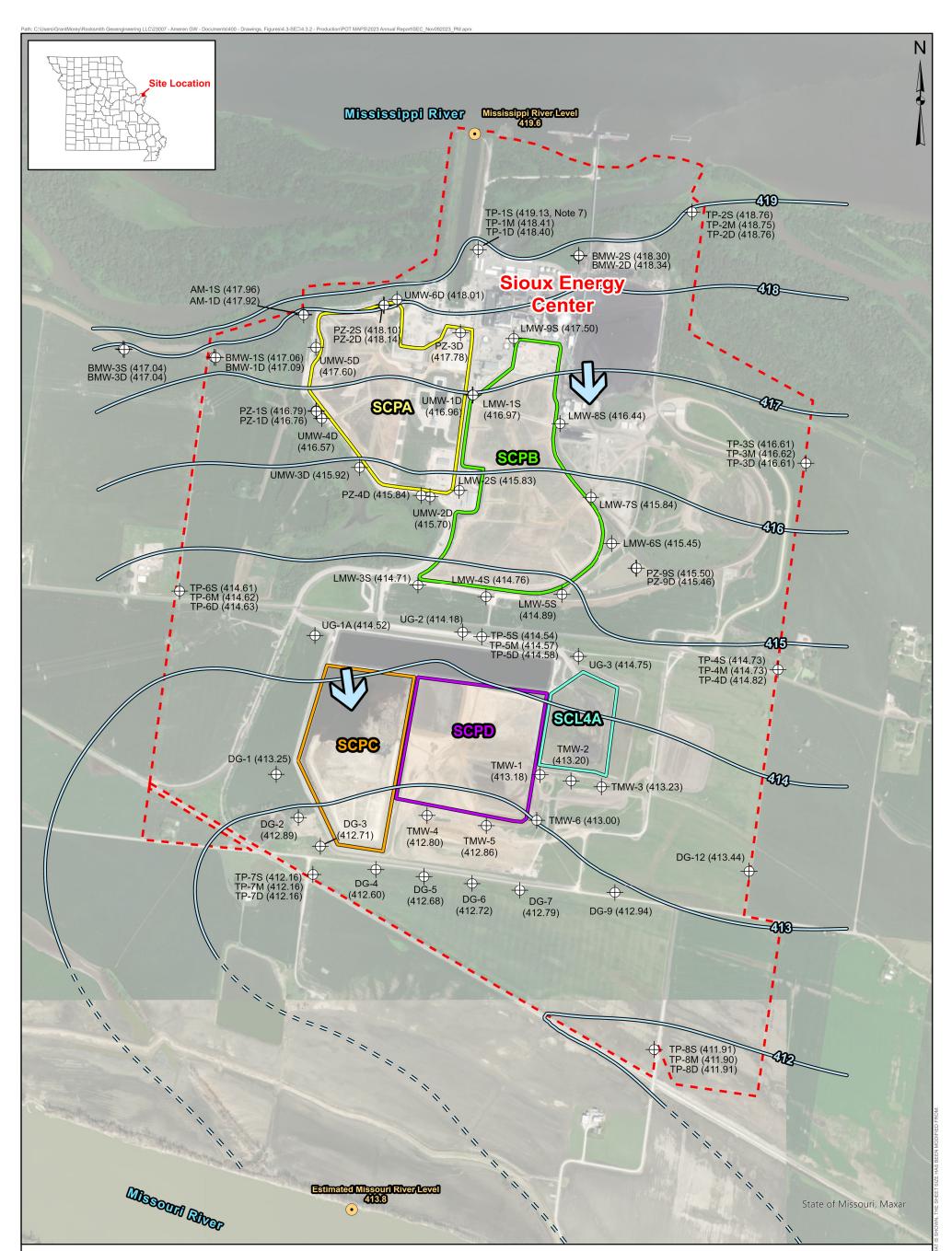
Feet

500 1,000 1,500 2,000 0

# SIOUX ENERGY CENTER



		-	
DESIGN	GTM	YYYY-MM-DD	2023-08-23
PREPARED	GTM	PROJECT No.	23009
REVIEW	JSI	FIGUD	<b>E D</b> 2
APPROVED	MNH	FIGUR	E D3



#### LEGEND

Sioux Energy Center Property Boundary 12.2

#### CCR Units



- - SCPB Fly Ash Surface Impoundment (Closed)

Impoundment (Closed)

SCPC - WFGD Surface Impoundment (Closure in Progress)



SCL4A - Dry CCR Disposal Area



#### Groundwater Elevation Contour (FT MSL) Groundwater Elevation Contour (FT MSL) SCPA - Bottom Ash Surface Inferred Groundwater = = Elevation Contour (FT MSL) Ground/Surface Water Measurement Locations $oldsymbol{eta}$ River Gauge Location

3

Monitoring Well or  $\oplus$ Piezometer

#### Groundwater Flow Direction

#### NOTES

 ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
 GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET CHORNELINE (TMSL)
 GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY ROCKSMITH
 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

0

- 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).

500 1,000 1,500 2,000

#### TITLE

# **NOVEMBER 9, 2023 POTENTIOMETRIC** SURFACE MAP

PROJECT

CCR GROUNDWATER MONITORING PROGRAM

CLIENT AMEREN MISSOURI SIOUX ENERGY CENTER



<b>Ameren</b>
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	APPROVED	MNH	FIGURE D4	
	REVIEW	JSI		
[	PREPARED	GTM	PROJECT No.	23009
	DESIGN	GTM	YYYY-MM-DD	2023-12-29

