REPORT

2022 Annual Groundwater Monitoring and Corrective Action Report

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

Submitted to:

Ameren Missouri

1901 Chouteau Avenue, St. Louis, Missouri 63103

Submitted by:

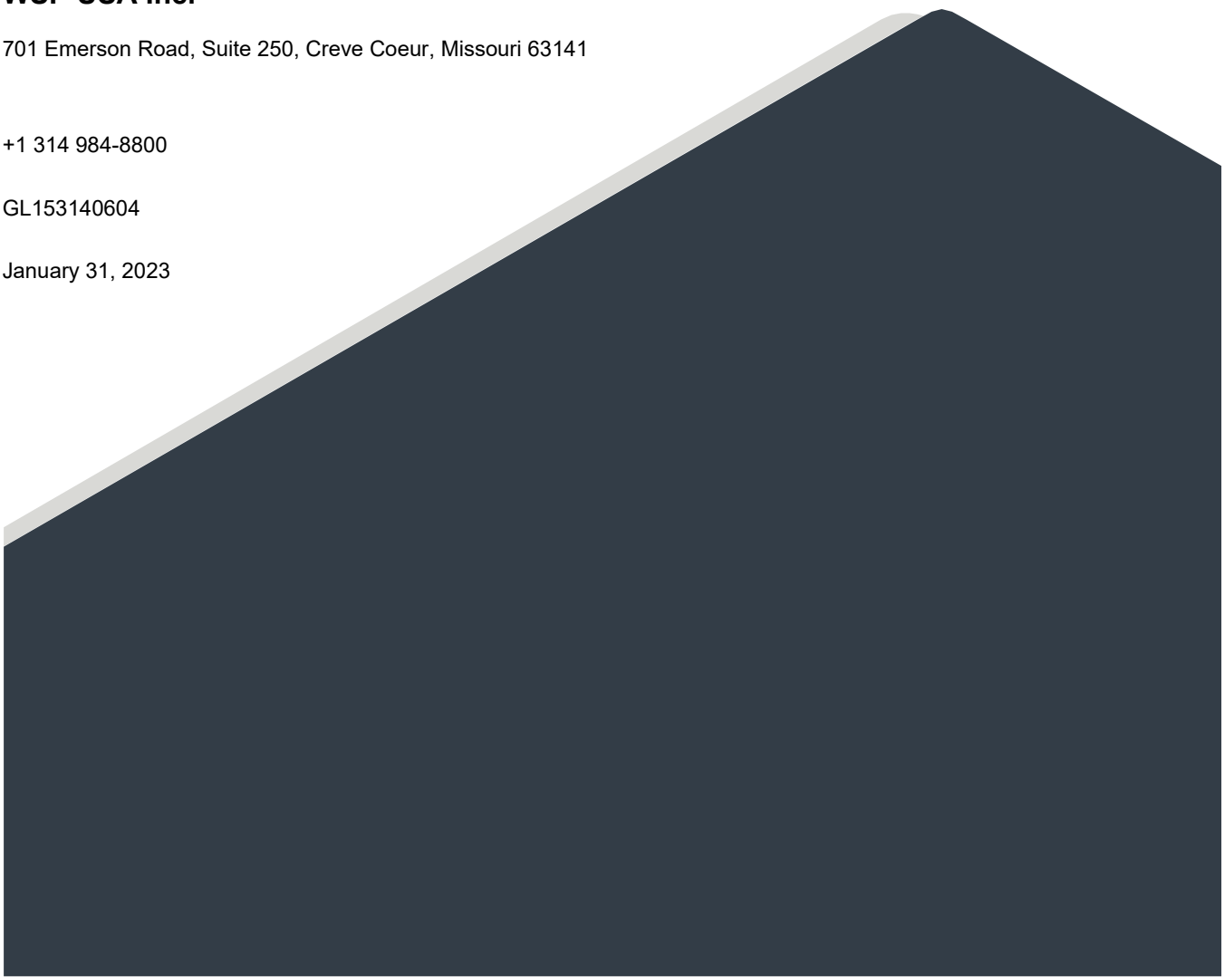
WSP USA Inc.

701 Emerson Road, Suite 250, Creve Coeur, Missouri 63141

+1 314 984-8800

GL153140604

January 31, 2023



EXECUTIVE SUMMARY AND STATUS OF THE SCPB GROUNDWATER MONITORING PROGRAM

This annual report was developed to meet the requirements of United States Environmental Protection Agency (USEPA) 40 CFR Part 257 “Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule” (the CCR Rule). The CCR Rule requires owners or operators of existing CCR units to produce an Annual Groundwater Monitoring and Corrective Action Report (Annual Report) each year (§ 257.90(e)). Ameren Missouri (Ameren) has determined that the SCPB Coal Combustion Residuals (CCR) Surface Impoundment at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This Annual Report for the SCPB describes CCR Rule groundwater monitoring activities from January 1, 2022 through December 31, 2022 including verification results related to late 2021 sampling.

Throughout 2022, the SCPB CCR unit has been operating under the Detection Monitoring Program (§257.94), which began October 17, 2017. As a part of Detection Monitoring, statistical evaluations are completed after each sampling event to determine if there are any values that represent a Statistically Significant Increase (SSI) over background concentrations. SSIs have been determined during each sampling event and a summary of the SSIs for the past year is provided in **Table 1**.

Table 1 - Summary of 2022 SCPB Sampling Events, Previous Year Verification, and Statistical Evaluations

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt Date	Parameters Collected	Verified SSIs	SSI Determination Date	ASD Completion Date
November 2021 Sampling Event	Detection Monitoring, November 8-11, 2021	December 28, 2021	Appendix III, Major Cations and Anions	**Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Calcium:** LMW-2S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-5S, LMW-7S, LMW-8S, LMW-9S **Fluoride:** LMW-1S, LMW-5S, LMW-8S **Sulfate:** LMW-1S, LMW-2S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **TDS:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S	March 28, 2022	June 24, 2022
	Verification Sampling, February 7, 2022	February 23, 2022	Detected Appendix III parameters (See Note 1)			
March-April 2022 Sampling Event	Detection Monitoring, March 28 to April 4, 2022	May 25, 2022	Appendix III, Major Cations and Anions	**Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Calcium:** LMW-2S, LMW-4S, LMW-5S, LMW-6S, LMW-8S, LMW-9S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-5S, LMW-7S, LMW-8S, LMW-9S **Sulfate:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **TDS:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S	August 23, 2022	November 11, 2022
	Verification Sampling, June 7, 2022	June 17, 2022	Detected Appendix III parameters (See Note 1)			
October 2022 Sampling Event	Detection Monitoring, October 18-20, 2022	November 22, 2022	Appendix III, Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2023.		

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

As outlined in section 257.94(e)(2) of the CCR Rule, the owner or operator may demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Alternative Source Demonstrations (ASDs) were prepared for each of these sampling events and are discussed further in this Annual Report.

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

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INSTALLATION OR DECOMMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCPB. The groundwater monitoring system consists of eleven (11) 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 2022 as a part of the CCR Rule monitoring program for the SCPB. For more information on the groundwater monitoring network, details are provided in the previous Annual Groundwater Monitoring Reports for the SCPB.

2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the SCPB CCR Unit in 2022. **Table 2** below provides a summary of the groundwater samples collected in 2022 including the number of samples, the date of sample collection, and the monitoring program.

Table 2 – Summary of Groundwater Sampling Dates

Sampling Event	Groundwater Monitoring Wells											Monitoring Program
	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S	
	Date of Sample Collection											
February 2022 Verification Sampling	-	-	-	-	-	-	2/7/2022	-	-	2/7/2022	-	Detection
March-April 2022 Sampling	3/29/2022	3/29/2022	3/31/2022	4/4/2022	3/28/2022	4/4/2022	4/1/2022	4/1/2022	4/1/2022	4/1/2022	4/4/2022	Detection
June 2022 Verification Sampling	-	-	-	-	6/7/2022	6/7/2022	-	-	-	-	-	Detection
October 2022 Sampling	10/18/2022	10/18/2022	10/19/2022	10/19/2022	10/20/2022	10/20/2022	10/18/2022	10/20/2022	10/18/2022	10/18/2022	10/19/2022	Detection
Total Number of Samples Collected	2	2	2	2	3	3	3	2	2	3	2	NA

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

2.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 8-11, 2021. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2021 event were not completed until 2022 and are included in this report. Detections of Appendix III analytes triggered a verification sampling event, which was completed on February 7, 2022 and verified SSIs. **Table 3** summarizes the results of the statistical analysis of the November 2021 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**.

As outlined in section 257.94(e)(2) of the CCR Rule, the owner or operator may demonstrate that a source other than the CCR unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. An ASD was completed for these SSIs and is provided in **Appendix B**. This ASD demonstrates that SSIs at the monitoring

wells around SCPB are not caused by the SCPB CCR Unit and the SCPB CCR Unit remains in Detection Monitoring.

Detection Monitoring samples were collected March 28 to April 4, 2022 and testing was completed for all Appendix III analytes, as well as major cations and anions. Detections of Appendix III analytes triggered verification sampling, which was completed June 7, 2022. Statistical analysis of the data determined SSIs. **Table 4** summarizes the results of the statistical analysis of the March-April 2022 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**. As with the November 2021 sampling event, SSIs reported for the monitoring data are not caused by the SCPB CCR unit and an ASD is provided in **Appendix C**.

A Detection Monitoring sampling event was completed October 18-20, 2022 and testing was performed for all Appendix III analytes, as well as major cations and anions. Statistical analyses to evaluate for SSIs in the October 2022 data were not completed in 2022 and the results will be provided in the 2023 Annual Report. **Table 5** summarizes the results of the October 2022 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 often flowed from north to south. The overall net groundwater flow direction in the alluvial aquifer at the SEC was slightly to the southeast due to reversals in flow as a result of variable river levels in the Missouri and Mississippi Rivers. Horizontal gradients calculated by the program range from 0.00006 to 0.0009 feet/foot with an estimated net annual groundwater movement of approximately four (4) feet per year in the prevailing downgradient direction.

2.3 Sampling Issues

No notable sampling issues were encountered at the SCPB in 2022.

3.0 ACTIVITIES PLANNED FOR 2023

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2023. Statistical analysis of the October 2022 Detection Monitoring data will be completed in 2023 and included in the 2023 Annual Report.

Tables

Table 3
November 2021 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2021 Detection Monitoring Event													
DATE	NA	NA	11/8/2021	11/8/2021	11/11/2021	11/10/2021	11/11/2021	11/10/2021	11/9/2021	11/9/2021	11/9/2021	11/10/2021	11/10/2021
pH	SU	6.472-7.531	6.86	6.99	7.36	6.87	6.60	6.70	7.11	7.07	7.05	6.73	6.77
BORON, TOTAL	µg/L	120.5	66.9 J	67.8 J	307	8,000	219	254	12,900	22,500 J	2,900	5,200	1,330
CALCIUM, TOTAL	µg/L	166,512	160,000	137,000	70,500	236,000	155,000 J	185,000	253,000 J	291,000	246,000	177,000	193,000
CHLORIDE, TOTAL	mg/L	13.12	7.4	12.0	18.9	155	25.8	2.5 J	21.8	3.3 J	13.5	25.7	104
FLUORIDE, TOTAL	mg/L	0.416	ND	0.46	0.42	ND	0.26	0.22 J	0.55	ND	0.17 J	0.59 J	0.35
SULFATE, TOTAL	mg/L	36.69	31.8	31.2	46.0	186	29.1	31.4	835	809	397	304	273
TOTAL DISSOLVED SOLIDS	mg/L	579	534	461	320	967	753	624	1,620	1,570	1,160	841	941
February 2022 Verification Sampling Event													
DATE	NA	NA							2/7/2022			2/7/2022	
pH	SU	6.472-7.531											
BORON, TOTAL	µg/L	120.5											
CALCIUM, TOTAL	µg/L	166,512											
CHLORIDE, TOTAL	mg/L	13.12											
FLUORIDE, TOTAL	mg/L	0.416							0.46			0.48	
SULFATE, TOTAL	mg/L	36.69											
TOTAL DISSOLVED SOLIDS	mg/L	579											

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

Prepared By: EMS
Checked By: LMS
Reviewed By: MNH

Table 4
March-April 2022 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
March-April 2022 Detection Monitoring Event													
DATE	NA	NA	3/29/2022	3/29/2022	3/31/2022	4/4/2022	3/28/2022	4/4/2022	4/1/2022	4/1/2022	4/1/2022	4/1/2022	4/4/2022
pH	SU	6.472-7.531	6.80	6.94	7.43	6.82	6.86	6.73	6.85	6.82	6.85	6.78	6.61
BORON, TOTAL	µg/L	120.5	68.0 J	70.7 J	231	7,520	211	594	16,300	26,100	2,700	4,340	1,450
CALCIUM, TOTAL	µg/L	166,512	173,000	147,000	73,000	201,000	166,000	175,000	264,000	260,000	ND	190,000	235,000
CHLORIDE, TOTAL	mg/L	13.12	8.5	11.8	30.8 J	161	33.4	5.7 J	17.1 J	2.5	16.7	23.3	88.7
FLUORIDE, TOTAL	mg/L	0.416	0.30	0.36	0.27 J	ND	ND	ND	0.39 J	0.19 J	ND	0.37	0.28
SULFATE, TOTAL	mg/L	36.69	44.9	47.8	16.7	249	65.0	60.2	899 J	705	483 J	326	299
TOTAL DISSOLVED SOLIDS	mg/L	579	591	508	334	981	621	647	1,610	1,470	1,070	980	1,170 J
June 2022 Verification Sampling Event													
DATE	NA	NA					6/7/2022	6/7/2022					
pH	SU	6.472-7.531											
BORON, TOTAL	µg/L	120.5											
CALCIUM, TOTAL	µg/L	166,512											
CHLORIDE, TOTAL	mg/L	13.12											
FLUORIDE, TOTAL	mg/L	0.416											
SULFATE, TOTAL	mg/L	36.69					43.4	109					
TOTAL DISSOLVED SOLIDS	mg/L	579											

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

Prepared By: GTM
Checked By: BTT
Reviewed By: MNH

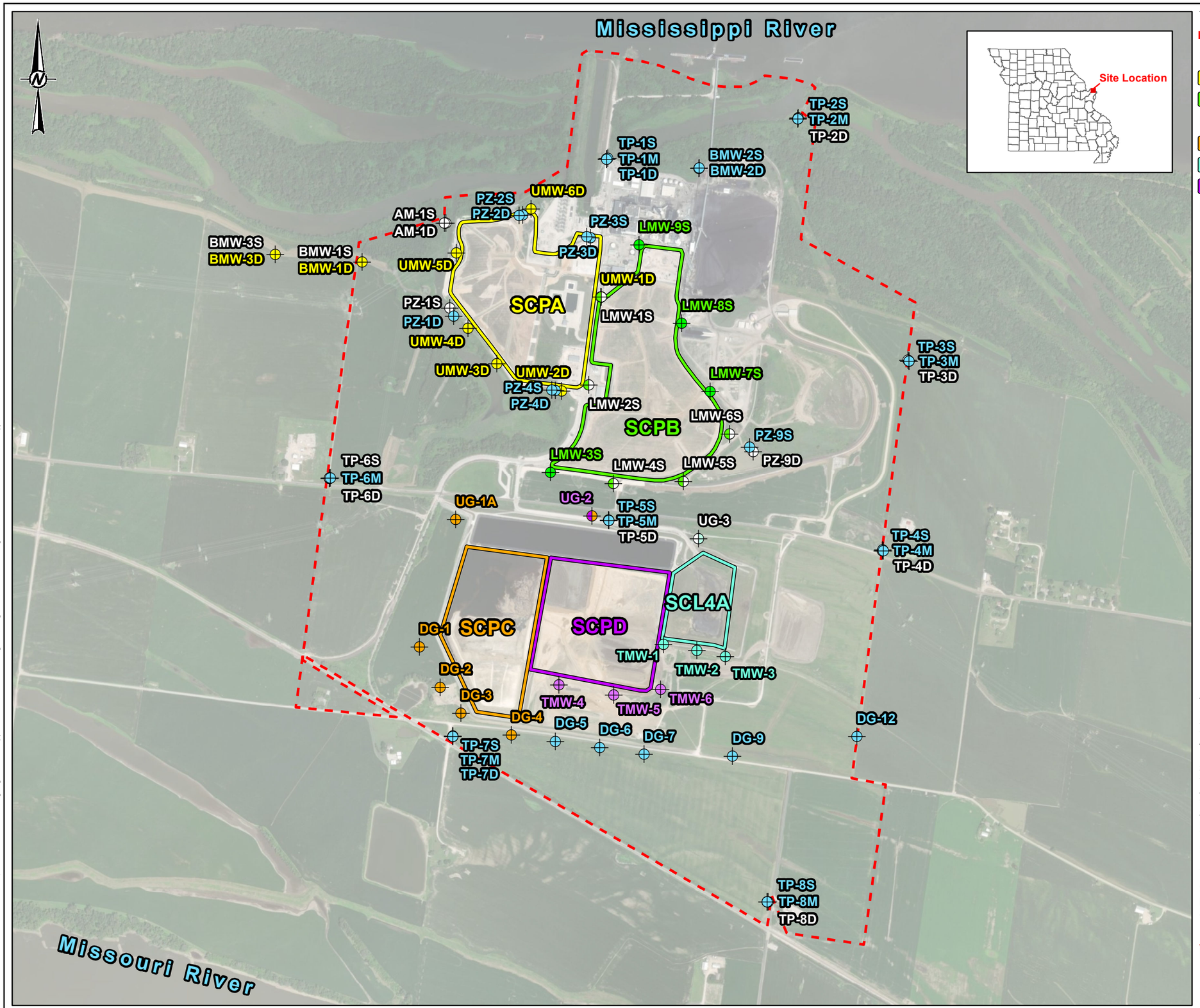
Table 5
October 2022 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
October 2022 Detection Monitoring Event												
DATE	NA	10/18/2022	10/18/2022	10/19/2022	10/19/2022	10/20/2022	10/20/2022	10/18/2022	10/20/2022	10/18/2022	10/18/2022	10/19/2022
pH	SU	6.84	7.01	7.26	6.80	6.54	6.55	6.90	6.55	6.73	6.71	6.56
BORON, TOTAL	µg/L	73.0 J	84.2 J	339	8,550	205	375	12,700	21,600	2,440	3,290	1,330
CALCIUM, TOTAL	µg/L	168,000	131,000	85,100	205,000	169,000	185,000	238,000	278,000	206,000	176,000	216,000
CHLORIDE, TOTAL	mg/L	9.2	11.7	36.2	149	20	3.1	22.7	2.7	62.9 J	60.5	86.4
FLUORIDE, TOTAL	mg/L	0.20 J	0.22	0.28	ND	ND	ND	0.51	ND	0.18 J	0.19 J	0.41
SULFATE, TOTAL	mg/L	61.1	27.8	83.5	243	75.7	37.0	868	605	323 J	315	285
TOTAL DISSOLVED SOLIDS	mg/L	711	467	383	977	626	724	1,400	936	1,230	1,150	1,160

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: EMS
Checked By: JAB
Reviewed By: MNH

Figures



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

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

Utility Waste Landfill (UWL)

- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- SCPD - WFGD Surface Impoundment

Monitoring Well Networks

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

0 1,000 2,000 3,000

Feet

NOTE(S)

1.) ALL BOUNDARIES AND LOCATIONS ARE APPROXIMATE.
2.) WFGD - WET FLUE GAS DESULFURIZATION
3.) CCR - COAL COMBUSTION RESIDUALS

REFERENCE(S)

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.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
GROUNDWATER MONITORING PROGRAM

TITLE
SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2022-12-12
DESIGNED	JSI
PREPARED	EMS
REVIEWED	GTM/JSI
APPROVED	MNH

PROJECT NO.	CONTROL	REV.	FIGURE
1531406-04	1240	0	1

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

1in 0

PATH: C:\Users\Echneider\Golder Associates\1531406\01.02 - Ameren CCR GW Monitoring Program 2020 - APF (1)\5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\MNA Eval\Figure XX - CCR WELL PROGRAMS - MNA - Copy.mxd PRINTED ON: 2022-12-12 AT: 8:34:56 AM

APPENDIX A

Laboratory Analytical Data

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

February 23, 2022

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

RE: Project: AMEREN VS SCPB
Pace Project No.: 60392278

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on February 09, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

cc: Ryan Feldmann, Golder
Mark Haddock, Golder Associates
Eric Schneider, Golder Associates
Brendan Talbert, Golder Associates

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

CERTIFICATIONS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 2000302021-3
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60392278001	**S-LMW-5S**	Water	02/07/22 14:13	02/09/22 04:04
60392278002	**S-LMW-8S**	Water	02/07/22 15:25	02/09/22 04:04
60392278003	**S-LMW-FB-1**	Water	02/07/22 14:30	02/09/22 04:04
60392278004	**S-LMW-DUP-1**	Water	02/07/22 08:00	02/09/22 04:04

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

SAMPLE ANALYTE COUNT

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60392278001	**S-LMW-5S**	EPA 300.0	SK	1	PASI-K
60392278002	**S-LMW-8S**	EPA 300.0	LDB	1	PASI-K
60392278003	**S-LMW-FB-1**	EPA 300.0	SK	1	PASI-K
60392278004	**S-LMW-DUP-1**	EPA 300.0	SK	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Sample: S-LMW-5S **Lab ID: 60392278001** Collected: 02/07/22 14:13 Received: 02/09/22 04:04 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.46**	mg/L	0.20	0.12	1		02/16/22 14:40	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Sample: S-LMW-8S **Lab ID: 60392278002** Collected: 02/07/22 15:25 Received: 02/09/22 04:04 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.48**	mg/L	0.20	0.12	1		02/17/22 16:11	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Sample: S-LMW-FB-1 **Lab ID: 60392278003** Collected: 02/07/22 14:30 Received: 02/09/22 04:04 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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		02/16/22 14:54	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Sample: S-LMW-DUP-1 **Lab ID: 60392278004** Collected: 02/07/22 08:00 Received: 02/09/22 04:04 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.50**	mg/L	0.20	0.12	1		02/16/22 15:08	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VS SCPB
Pace Project No.: 60392278

QC Batch: 771173
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60392278001, 60392278003, 60392278004

METHOD BLANK: 3079295 Matrix: Water
Associated Lab Samples: 60392278001, 60392278003, 60392278004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.12	0.20	0.12	02/15/22 08:48	

METHOD BLANK: 3081055 Matrix: Water
Associated Lab Samples: 60392278001, 60392278003, 60392278004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.12	0.20	0.12	02/16/22 13:17	

METHOD BLANK: 3081506 Matrix: Water
Associated Lab Samples: 60392278001, 60392278003, 60392278004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.12	0.20	0.12	02/17/22 18:53	

LABORATORY CONTROL SAMPLE: 3079296

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	97	90-110	

LABORATORY CONTROL SAMPLE: 3081056

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	108	90-110	

LABORATORY CONTROL SAMPLE: 3081507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	108	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VS SCPB
Pace Project No.: 60392278

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3079297 3079298

Parameter	Units	60392266002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.47	2.5	2.5	2.7	2.8	91	95	80-120	3	15	

SAMPLE DUPLICATE: 3079299

Parameter	Units	60392266002 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.47	0.47	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VS SCPB
Pace Project No.: 60392278

QC Batch: 771622
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60392278002

METHOD BLANK: 3080821 Matrix: Water
Associated Lab Samples: 60392278002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.12	0.20	0.12	02/17/22 15:45	

LABORATORY CONTROL SAMPLE: 3080822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3080824 3080825

Parameter	Units	60392278002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.48	2.5	2.5	3.2	3.3	111	113	80-120	2	15	

MATRIX SPIKE SAMPLE: 3080826

Parameter	Units	60392877003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	250	279	111	80-120	

SAMPLE DUPLICATE: 3080823

Parameter	Units	60392278002 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.48	0.49	2	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN VS SCPB
Pace Project No.: 60392278

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN VS SCPB
Pace Project No.: 60392278

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60392278001	**S-LMW-5S**	EPA 300.0	771173		
60392278002	**S-LMW-8S**	EPA 300.0	771622		
60392278003	**S-LMW-FB-1**	EPA 300.0	771173		
60392278004	**S-LMW-DUP-1**	EPA 300.0	771173		

WO# : 60392278

60392278

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

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 1.5 **Corr. Factor** -0.2 **Corrected** 1.3

Date and initials of person examining contents: PW 2/9/22

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	Times
Samples arrived within holding time:	☑Yes ☐No ☐N/A	~~S-LPA~~ S-LMW-55 = 14:13
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	PW 2/9/22 - 85 = 15:25
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	- FB-1 = 14:30
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:**	☐Yes ☐No ☑N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	Golder Associates
Address:	13515 Barrett Parkway Dr., Ste 260
	Ballwin, MO 63021
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman, Brendan Talbert
Purchase Order No.:	
Project Name:	Ameren - Verification Sampling – SCPB
Project Number:	153140603 . 00038

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates Inc
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285, line 1

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride	Fluoride	Sulfate	TDS	Calcium	Boron					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N	N	N	N	N		60392278
1	S-LMW-SS	WT	G			2-7-22			1	/									/										BPZU
2	S-LMW-BS	WT	G			"			1	/									/										3BPZU
3	S-LMW-FB-1	WT	G			"			1	/									/										↓
4	S-LMW-DUP-1	WT	G			"	—		1	/									/										
5	S-LMW-MS-1	WT	G			"			1	/									/										
6	S-LMW-MSD-1	WT	G			"			1	/									/										
7		WT	G																										
8		WT	G																										
9		WT	G																										
10		WT	G																										
11		WT	G																										
12		WT	G																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Brendan Talbert / Golder	2-8-22	1450	Angela M	2/8	1500				
	Angela M	2-8	1520	Pamplast	2/9	0404	1.3	X	X	X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert — DATE Signed (MM/DD/YY): 02/08/22

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

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

MEMORANDUM

DATE March 2, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – VERIFICATION SAMPLING - DATA PACKAGE 60392278

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

- None.

701 Emerson Road, Suite 250,
Creve Coeur, Missouri, USA 63141

T: +1 314 984-8800 F: +1 314 984-8770

golder.com

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates USA Inc / WSP
Project Manager: J. Ingram
Project Name: Ameren- Sioux - SCPB
Project Number: 153140604
Reviewer: A. Muehlfarth
Validation Date: 3/2/2022

Laboratory: Pace Analytical Services - Kansas City
SDG #: 60392278
Analytical Method (type and no.): EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-LMW-5S, S-LMW-8S, S-LMW-FB-1, S-LMW-DUP-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			2/7/2022
b) Sampling team indicated?	x			BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			
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/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	☒	☐	
b) Were analytes detected in the field blank(s)?	☐	☒	☐	S-LMW-FB-1 @ S-LMW-5S
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	S-LMW-DUP-1 @ S-LMW-5S
b) Were field dup. precision criteria met (note RPD)?	☒	☐	☐	Max RPD: 8.3% [<20%]
c) Were lab duplicates analyzed (note original and duplicate samples)?	☒	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☒	☐	☐	Max RPD: 2% [<15%]

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

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

Comments/Notes:

Times were not included on the COC. Times were logged by the laboratory from the sample containers.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Ann Muehlfarth _____ Date: 3/2/2022

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

May 25, 2022

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

RE: Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between March 30, 2022 and April 05, 2022. 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

Lab Note: S-LMW-9S TDS had to be analyzed out of hold for DUP, analyst missed that is was required. Both in hold and out of hold data reported.

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

Sincerely,

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

Enclosures

cc: Ryan Feldmann, Golder
Mark Haddock, Golder Associates
Eric Schneider, Golder Associates
Brendan Talbert, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 2000302021-3
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-21-15
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60396337001	**S-LMW-3S**	Water	03/28/22 13:05	03/30/22 04:23
60396337004	**S-LMW-7S**	Water	04/01/22 13:44	04/02/22 03:00
60396337005	**S-LMW-8S**	Water	04/01/22 15:00	04/02/22 03:00
60396337006	**S-LMW-DUP-1**	Water	04/01/22 08:00	04/02/22 03:00
60396337007	**S-LMW-DUP-2**	Water	04/01/22 08:00	04/02/22 03:00
60396337008	**S-LMW-FB-1**	Water	04/01/22 13:59	04/02/22 03:00
60396337009	**S-LMW-FB-2**	Water	04/01/22 15:15	04/02/22 03:00
60396337010	**S-LMW-9S**	Water	04/04/22 09:40	04/05/22 04:32
60396333017	**S-LMW-1S**	Water	03/31/22 14:52	04/02/22 03:00
60396333023	**S-LMW-2S**	Water	04/04/22 12:10	04/05/22 04:32
60396333022	**S-LMW-4S**	Water	04/04/22 13:05	04/05/22 04:32
60396333006	**S-LMW-5S**	Water	04/01/22 09:27	04/02/22 03:00
60396333005	**S-LMW-6S**	Water	04/01/22 12:33	04/02/22 03:00
60396337002	**S-BMW-1S**	Water	03/29/22 14:00	03/30/22 04:23
60396337003	**S-BMW-3S**	Water	03/29/22 12:20	03/30/22 04:23

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60396337001	S-LMW-3S	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60396337004	S-LMW-7S	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337005	S-LMW-8S	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337006	S-LMW-DUP-1	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337007	S-LMW-DUP-2	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337008	S-LMW-FB-1	EPA 200.7	MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337009	S-LMW-FB-2	EPA 200.7	MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337010	S-LMW-9S	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK, TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396333017	S-LMW-1S	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396333023	S-LMW-2S	EPA 200.7	JLH, MRV	7	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396333022	**S-LMW-4S**	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396333006	**S-LMW-5S**	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396333005	**S-LMW-6S**	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337002	**S-BMW-1S**	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60396337003	**S-BMW-3S**	EPA 200.7	JLH, MRV	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	KB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-3S **Lab ID: 60396337001** Collected: 03/28/22 13:05 Received: 03/30/22 04:23 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**211**	ug/L	100	7.1	1	04/04/22 09:58	04/05/22 18:05	7440-42-8	
Calcium	**166000**	ug/L	400	143	2	04/04/22 09:58	04/06/22 10:43	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/04/22 09:58	04/05/22 18:05	7439-89-6	
Magnesium	**33100**	ug/L	50.0	11.7	1	04/04/22 09:58	04/05/22 18:05	7439-95-4	
Manganese	**12.9**	ug/L	5.0	1.1	1	04/04/22 09:58	04/05/22 18:05	7439-96-5	
Potassium	**4370**	ug/L	500	224	1	04/04/22 09:58	04/05/22 18:05	7440-09-7	
Sodium	**18500**	ug/L	500	166	1	04/04/22 09:58	04/05/22 18:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**513**	mg/L	20.0	4.6	1		04/05/22 10:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**621**	mg/L	10.0	10.0	1		04/01/22 17:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**33.4**	mg/L	10.0	5.3	10		04/01/22 17:37	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/01/22 16:41	16984-48-8	
Sulfate	**65.0**	mg/L	10.0	5.5	10		04/01/22 17:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-7S **Lab ID: 60396337004** Collected: 04/01/22 13:44 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**2700**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:17	7440-42-8	
Calcium	**<214**	ug/L	600	214	3	04/07/22 13:51	04/11/22 18:13	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:17	7439-89-6	
Magnesium	**49900**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:17	7439-95-4	
Manganese	**611**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:17	7439-96-5	
Potassium	**4560**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:17	7440-09-7	
Sodium	**20500**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:43	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**438**	mg/L	20.0	4.6	1		04/08/22 13:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1070**	mg/L	13.3	13.3	1		04/07/22 16:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**16.7**	mg/L	1.0	0.53	1		04/08/22 15:49	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/08/22 15:49	16984-48-8	
Sulfate	**483**	mg/L	50.0	27.5	50		04/08/22 16:17	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-8S **Lab ID: 60396337005** Collected: 04/01/22 15:00 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**4340**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:20	7440-42-8	
Calcium	**190000**	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:16	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:20	7439-89-6	
Magnesium	**39200**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:20	7439-95-4	
Manganese	**648**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:20	7439-96-5	
Potassium	**4800**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:20	7440-09-7	
Sodium	**54800**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:46	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**370**	mg/L	20.0	4.6	1		04/08/22 13:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**980**	mg/L	10.0	10.0	1		04/07/22 16:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**23.3**	mg/L	5.0	2.6	5		04/08/22 16:45	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.12	1		04/08/22 16:31	16984-48-8	
Sulfate	**326**	mg/L	50.0	27.5	50		04/08/22 16:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-DUP-1 **Lab ID: 60396337006** Collected: 04/01/22 08:00 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**2760**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:22	7440-42-8	
Calcium	**226000**	ug/L	600	214	3	04/07/22 13:51	04/11/22 18:18	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:22	7439-89-6	
Magnesium	**63400**	ug/L	150	35.1	3	04/07/22 13:51	04/11/22 18:18	7439-95-4	
Manganese	**605**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:22	7439-96-5	
Potassium	**4690**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:22	7440-09-7	
Sodium	**21400**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:48	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**443**	mg/L	20.0	4.6	1		04/08/22 13:21		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1090**	mg/L	13.3	13.3	1		04/07/22 16:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**16.7**	mg/L	1.0	0.53	1		04/08/22 17:12	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/08/22 17:12	16984-48-8	
Sulfate	**365**	mg/L	50.0	27.5	50		04/08/22 17:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-DUP-2 **Lab ID: 60396337007** Collected: 04/01/22 08:00 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**4370**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:24	7440-42-8	
Calcium	**193000**	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:20	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:24	7439-89-6	
Magnesium	**39000**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:24	7439-95-4	
Manganese	**642**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:24	7439-96-5	
Potassium	**4870**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:24	7440-09-7	
Sodium	**53100**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:55	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**369**	mg/L	20.0	4.6	1		04/08/22 13:33		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**947**	mg/L	10.0	10.0	1		04/07/22 16:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**23.3**	mg/L	5.0	2.6	5		04/08/22 18:35	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.12	1		04/08/22 17:54	16984-48-8	
Sulfate	**327**	mg/L	50.0	27.5	50		04/08/22 18:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-FB-1 **Lab ID: 60396337008** Collected: 04/01/22 13:59 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<7.1**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:31	7440-42-8	
Calcium	**<71.3**	ug/L	200	71.3	1	04/07/22 13:51	04/09/22 16:31	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:31	7439-89-6	
Magnesium	**<11.7**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:31	7439-95-4	
Manganese	**<1.1**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:31	7439-96-5	
Potassium	**<224**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:31	7440-09-7	
Sodium	**<166**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:57	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<4.6**	mg/L	20.0	4.6	1		04/08/22 13:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**9.5**	mg/L	5.0	5.0	1		04/07/22 16:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		04/08/22 19:02	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/08/22 19:02	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		04/08/22 19:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-FB-2 **Lab ID: 60396337009** Collected: 04/01/22 15:15 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<7.1**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:33	7440-42-8	
Calcium	**<71.3**	ug/L	200	71.3	1	04/07/22 13:51	04/09/22 16:33	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:33	7439-89-6	
Magnesium	**13.3J**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:33	7439-95-4	
Manganese	**<1.1**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:33	7439-96-5	
Potassium	**<224**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:33	7440-09-7	
Sodium	**<166**	ug/L	500	166	1	04/07/22 13:51	04/10/22 14:59	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<4.6**	mg/L	20.0	4.6	1		04/08/22 13:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**5.5**	mg/L	5.0	5.0	1		04/08/22 15:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		04/08/22 19:30	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/08/22 19:30	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		04/08/22 19:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-9S **Lab ID: 60396337010** Collected: 04/04/22 09:40 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Boron	**1450**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:03	7440-42-8	
Calcium	**235000**	ug/L	600	214	3	04/07/22 13:51	04/11/22 18:40	7440-70-2	M1
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:03	7439-89-6	
Magnesium	**73300**	ug/L	100	23.4	2	04/07/22 13:51	04/11/22 18:38	7439-95-4	M1
Manganese	**390**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:03	7439-96-5	
Potassium	**5190**	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:03	7440-09-7	
Sodium	**56200**	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**567**	mg/L	20.0	4.6	1		04/13/22 15:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1140**	mg/L	13.3	13.3	1		04/08/22 15:18		
Total Dissolved Solids	**1170**	mg/L	10.0	10.0	1		05/16/22 18:12		H5
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**88.7**	mg/L	20.0	10.5	20		04/06/22 11:09	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.12	1		04/06/22 10:14	16984-48-8	
Sulfate	**299**	mg/L	20.0	11.0	20		04/06/22 11:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-1S **Lab ID: 60396333017** Collected: 03/31/22 14:52 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**231**	ug/L	100	7.1	1	04/07/22 16:00	04/09/22 20:15	7440-42-8	
Calcium	**73000**	ug/L	200	71.3	1	04/07/22 16:00	04/09/22 20:15	7440-70-2	
Iron	**105**	ug/L	50.0	21.1	1	04/07/22 16:00	04/09/22 20:15	7439-89-6	
Magnesium	**17700**	ug/L	50.0	11.7	1	04/07/22 16:00	04/09/22 20:15	7439-95-4	
Manganese	**195**	ug/L	5.0	1.1	1	04/07/22 16:00	04/09/22 20:15	7439-96-5	
Potassium	**5830**	ug/L	500	224	1	04/07/22 16:00	04/11/22 15:21	7440-09-7	
Sodium	**15900**	ug/L	500	166	1	04/07/22 16:00	04/11/22 15:21	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**204**	mg/L	20.0	4.6	1		04/13/22 16:34		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**334**	mg/L	5.0	5.0	1		04/06/22 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**30.8**	mg/L	5.0	2.6	5		04/18/22 15:49	16887-00-6	B
Fluoride	**0.27**	mg/L	0.20	0.12	1		04/15/22 19:03	16984-48-8	
Sulfate	**16.7**	mg/L	1.0	0.55	1		04/15/22 19:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-2S **Lab ID: 60396333023** Collected: 04/04/22 12:10 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**7520**	ug/L	100	7.1	1	04/07/22 16:00	04/09/22 20:29	7440-42-8	
Calcium	**201000**	ug/L	600	214	3	04/07/22 16:00	04/11/22 20:21	7440-70-2	
Iron	**58.1**	ug/L	50.0	21.1	1	04/07/22 16:00	04/09/22 20:29	7439-89-6	
Magnesium	**31800**	ug/L	50.0	11.7	1	04/07/22 16:00	04/09/22 20:29	7439-95-4	
Manganese	**461**	ug/L	5.0	1.1	1	04/07/22 16:00	04/09/22 20:29	7439-96-5	
Potassium	**9500**	ug/L	500	224	1	04/07/22 16:00	04/11/22 16:58	7440-09-7	
Sodium	**59900**	ug/L	500	166	1	04/07/22 16:00	04/11/22 16:58	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**376**	mg/L	20.0	4.6	1		04/14/22 16:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**981**	mg/L	13.3	13.3	1		04/08/22 15:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**161**	mg/L	50.0	26.4	50		04/15/22 23:03	16887-00-6	B
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/15/22 22:49	16984-48-8	
Sulfate	**249**	mg/L	50.0	27.5	50		04/15/22 23:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-4S **Lab ID: 60396333022** Collected: 04/04/22 13:05 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**594**	ug/L	100	7.1	1	04/07/22 16:00	04/09/22 20:27	7440-42-8	
Calcium	**175000**	ug/L	400	143	2	04/07/22 16:00	04/11/22 20:18	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 16:00	04/09/22 20:27	7439-89-6	
Magnesium	**38600**	ug/L	50.0	11.7	1	04/07/22 16:00	04/09/22 20:27	7439-95-4	
Manganese	**54.6**	ug/L	5.0	1.1	1	04/07/22 16:00	04/09/22 20:27	7439-96-5	
Potassium	**4960**	ug/L	500	224	1	04/07/22 16:00	04/11/22 15:32	7440-09-7	
Sodium	**11100**	ug/L	500	166	1	04/07/22 16:00	04/11/22 15:32	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**577**	mg/L	20.0	4.6	1		04/14/22 16:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**647**	mg/L	10.0	10.0	1		04/08/22 15:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**5.7**	mg/L	1.0	0.53	1		04/15/22 22:20	16887-00-6	B
Fluoride	**<0.12**	mg/L	0.20	0.12	1		04/15/22 22:20	16984-48-8	
Sulfate	**60.2**	mg/L	10.0	5.5	10		04/15/22 22:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-5S **Lab ID: 60396333006** Collected: 04/01/22 09:27 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**16300**	ug/L	100	7.1	1	04/07/22 16:00	04/11/22 14:52	7440-42-8	
Calcium	**264000**	ug/L	600	214	3	04/07/22 16:00	04/11/22 19:44	7440-70-2	
Iron	**120**	ug/L	50.0	21.1	1	04/07/22 16:00	04/09/22 19:45	7439-89-6	
Magnesium	**45300**	ug/L	50.0	11.7	1	04/07/22 16:00	04/09/22 19:45	7439-95-4	
Manganese	**1710**	ug/L	5.0	1.1	1	04/07/22 16:00	04/09/22 19:45	7439-96-5	
Potassium	**5090**	ug/L	500	224	1	04/07/22 16:00	04/11/22 14:52	7440-09-7	
Sodium	**201000**	ug/L	500	166	1	04/07/22 16:00	04/11/22 14:52	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**320**	mg/L	20.0	4.6	1		04/13/22 18:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1610**	mg/L	20.0	20.0	1		04/07/22 16:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**17.1**	mg/L	1.0	0.53	1		04/06/22 19:42	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	0.12	1		04/06/22 19:42	16984-48-8	
Sulfate	**899**	mg/L	100	55.0	100		04/06/22 19:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-LMW-6S **Lab ID: 60396333005** Collected: 04/01/22 12:33 Received: 04/02/22 03:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**26100**	ug/L	100	7.1	1	04/07/22 16:00	04/11/22 14:50	7440-42-8	
Calcium	**260000**	ug/L	600	214	3	04/07/22 16:00	04/11/22 19:42	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 16:00	04/09/22 19:43	7439-89-6	
Magnesium	**63200**	ug/L	150	35.1	3	04/07/22 16:00	04/11/22 19:42	7439-95-4	
Manganese	**487**	ug/L	5.0	1.1	1	04/07/22 16:00	04/09/22 19:43	7439-96-5	
Potassium	**4930**	ug/L	500	224	1	04/07/22 16:00	04/11/22 14:50	7440-09-7	
Sodium	**96300**	ug/L	500	166	1	04/07/22 16:00	04/11/22 14:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**378**	mg/L	20.0	4.6	1		04/13/22 18:04		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1470**	mg/L	13.3	13.3	1		04/07/22 16:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.5**	mg/L	1.0	0.53	1		04/07/22 21:50	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.12	1		04/07/22 21:50	16984-48-8	
Sulfate	**705**	mg/L	100	55.0	100		04/06/22 19:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-BMW-1S **Lab ID: 60396337002** Collected: 03/29/22 14:00 Received: 03/30/22 04:23 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**68.0J**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:38	7440-42-8	
Calcium	**173000**	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:22	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:38	7439-89-6	
Magnesium	**30000**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:38	7439-95-4	
Manganese	**675**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:38	7439-96-5	
Potassium	**470J**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:38	7440-09-7	
Sodium	**4900**	ug/L	1000	332	2	04/07/22 13:51	04/11/22 18:22	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**505**	mg/L	20.0	4.6	1		04/05/22 10:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**591**	mg/L	10.0	10.0	1		04/01/22 17:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**8.5**	mg/L	1.0	0.53	1		04/01/22 18:04	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.12	1		04/01/22 18:04	16984-48-8	
Sulfate	**44.9**	mg/L	5.0	2.8	5		04/01/22 18:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Sample: S-BMW-3S **Lab ID: 60396337003** Collected: 03/29/22 12:20 Received: 03/30/22 04:23 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**70.7J**	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:40	7440-42-8	
Calcium	**147000**	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:29	7440-70-2	
Iron	**<21.1**	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:40	7439-89-6	
Magnesium	**24100**	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:40	7439-95-4	
Manganese	**215**	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:40	7439-96-5	
Potassium	**569**	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:40	7440-09-7	
Sodium	**6270**	ug/L	500	166	1	04/07/22 13:51	04/10/22 15:06	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**428**	mg/L	20.0	4.6	1		04/05/22 10:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**508**	mg/L	10.0	10.0	1		04/01/22 17:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**11.8**	mg/L	1.0	0.53	1		04/01/22 18:32	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.12	1		04/01/22 18:32	16984-48-8	
Sulfate	**47.8**	mg/L	5.0	2.8	5		04/01/22 18:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779353
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337001

METHOD BLANK: 3108936 Matrix: Water
Associated Lab Samples: 60396337001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<7.1	100	7.1	04/05/22 18:01	
Calcium	ug/L	<71.3	200	71.3	04/05/22 18:01	
Iron	ug/L	<21.1	50.0	21.1	04/05/22 18:01	
Magnesium	ug/L	<11.7	50.0	11.7	04/05/22 18:01	
Manganese	ug/L	<1.1	5.0	1.1	04/05/22 18:01	
Potassium	ug/L	<224	500	224	04/05/22 18:01	
Sodium	ug/L	<166	500	166	04/05/22 18:01	

LABORATORY CONTROL SAMPLE: 3108937

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	950	95	85-115	
Calcium	ug/L	10000	9980	100	85-115	
Iron	ug/L	10000	10000	100	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9570	96	85-115	
Sodium	ug/L	10000	9750	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3108938 3108939

Parameter	Units	60396339002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	84.9J	1000	1000	1080	1080	100	100	70-130	0	20	
Calcium	ug/L	124000	10000	10000	133000	127000	89	37	70-130	4	20	M1
Iron	ug/L	1140	10000	10000	11300	11200	102	100	70-130	1	20	
Magnesium	ug/L	22100	10000	10000	30500	30000	84	79	70-130	2	20	
Manganese	ug/L	372	1000	1000	1390	1380	102	101	70-130	1	20	
Potassium	ug/L	5310	10000	10000	15900	15800	106	105	70-130	1	20	
Sodium	ug/L	3820	10000	10000	14600	14600	107	108	70-130	0	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780187
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337002, 60396337003, 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

METHOD BLANK: 3111909 Matrix: Water
Associated Lab Samples: 60396337002, 60396337003, 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<7.1	100	7.1	04/09/22 15:48	
Calcium	ug/L	<71.3	200	71.3	04/09/22 15:48	
Iron	ug/L	<21.1	50.0	21.1	04/09/22 15:48	
Magnesium	ug/L	<11.7	50.0	11.7	04/09/22 15:48	
Manganese	ug/L	<1.1	5.0	1.1	04/09/22 15:48	
Potassium	ug/L	<224	500	224	04/09/22 15:48	
Sodium	ug/L	<166	500	166	04/12/22 13:11	

LABORATORY CONTROL SAMPLE: 3111910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	978	98	85-115	
Calcium	ug/L	10000	9160	92	85-115	
Iron	ug/L	10000	9920	99	85-115	
Magnesium	ug/L	10000	9930	99	85-115	
Manganese	ug/L	1000	963	96	85-115	
Potassium	ug/L	10000	11100	111	85-115	
Sodium	ug/L	10000	11000	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111911 3111912

Parameter	Units	60396338004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	93.3J	1000	1000	1090	1100	100	101	70-130	1	20	
Calcium	ug/L	163000	10000	10000	171000	172000	72	86	70-130	1	20	
Iron	ug/L	2250	10000	10000	12100	12100	99	98	70-130	1	20	
Magnesium	ug/L	28300	10000	10000	36300	35800	80	75	70-130	1	20	
Manganese	ug/L	1110	1000	1000	2100	2080	99	96	70-130	1	20	
Potassium	ug/L	6150	10000	10000	17900	17700	117	116	70-130	1	20	
Sodium	ug/L	5150	10000	10000	16800	16700	116	116	70-130	0	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

MATRIX SPIKE SAMPLE: 3111913

Parameter	Units	60396338008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	113	1000	1140	103	70-130	
Calcium	ug/L	97300	10000	119000	216	70-130	M1
Iron	ug/L	<21.1	10000	9940	99	70-130	
Magnesium	ug/L	21400	10000	30000	87	70-130	
Manganese	ug/L	14.8	1000	995	98	70-130	
Potassium	ug/L	5150	10000	17700	126	70-130	
Sodium	ug/L	43400	10000	56900	135	70-130	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780191
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337010

METHOD BLANK: 3111927 Matrix: Water
Associated Lab Samples: 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<7.1	100	7.1	04/09/22 16:45	
Calcium	ug/L	<71.3	200	71.3	04/09/22 16:45	
Iron	ug/L	<21.1	50.0	21.1	04/09/22 16:45	
Magnesium	ug/L	16.6J	50.0	11.7	04/09/22 16:45	
Manganese	ug/L	<1.1	5.0	1.1	04/09/22 16:45	
Potassium	ug/L	<224	500	224	04/09/22 16:45	
Sodium	ug/L	<166	500	166	04/10/22 15:58	

LABORATORY CONTROL SAMPLE: 3111928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	945	94	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111929 3111930

Parameter	Units	60396337010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1450	1000	1000	2490	2460	104	101	70-130	1	20	
Calcium	ug/L	235000	10000	10000	253000	243000	184	78	70-130	4	20	M1
Iron	ug/L	<21.1	10000	10000	10500	10100	105	101	70-130	4	20	
Magnesium	ug/L	73300	10000	10000	81200	79900	79	66	70-130	2	20	M1
Manganese	ug/L	390	1000	1000	1440	1380	105	99	70-130	4	20	
Potassium	ug/L	5190	10000	10000	16300	16200	112	110	70-130	1	20	
Sodium	ug/L	56200	10000	10000	68100	68300	120	122	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111931 3111932

Parameter	Units	60396735001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	99.3J	1000	1000	1090	1130	99	103	70-130	3	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111931 3111932

Parameter	Units	60396735001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	141000	10000	10000	148000	159000	76	186	70-130	7	20	M1
Iron	ug/L	34.2J	10000	10000	10400	10600	104	106	70-130	2	20	
Magnesium	ug/L	30200	10000	10000	39000	39500	88	93	70-130	1	20	
Manganese	ug/L	737	1000	1000	1790	1830	105	109	70-130	2	20	
Potassium	ug/L	6110	10000	10000	17000	17600	109	115	70-130	4	20	
Sodium	ug/L	4700	10000	10000	16000	16200	113	115	70-130	2	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780254
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333005, 60396333006, 60396333017, 60396333022, 60396333023

METHOD BLANK: 3112107 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006, 60396333017, 60396333022, 60396333023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<7.1	100	7.1	04/20/22 18:03	
Calcium	ug/L	<71.3	200	71.3	04/09/22 19:27	
Iron	ug/L	<21.1	50.0	21.1	04/09/22 19:27	
Magnesium	ug/L	13.2J	50.0	11.7	04/09/22 19:27	
Manganese	ug/L	1.3J	5.0	1.1	04/09/22 19:27	
Potassium	ug/L	<224	500	224	04/09/22 19:27	
Sodium	ug/L	<166	500	166	04/09/22 19:27	

LABORATORY CONTROL SAMPLE: 3112108

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	999	100	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	10400	104	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	10600	106	85-115	
Sodium	ug/L	10000	11000	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3112111 3112112

Parameter	Units	60396333011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	87.1J	1000	1000	1100	1100	101	101	70-130	0	20	
Calcium	ug/L	105000	10000	10000	118000	114000	132	93	70-130	3	20	M1
Iron	ug/L	6090	10000	10000	16300	16400	102	103	70-130	1	20	
Magnesium	ug/L	26000	10000	10000	33800	33900	78	79	70-130	0	20	
Manganese	ug/L	378	1000	1000	1370	1370	99	100	70-130	0	20	
Potassium	ug/L	3480	10000	10000	13900	14300	105	108	70-130	2	20	
Sodium	ug/L	9380	10000	10000	19900	19900	105	106	70-130	0	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779612
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337001, 60396337002, 60396337003

METHOD BLANK: 3109702 Matrix: Water
Associated Lab Samples: 60396337001, 60396337002, 60396337003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/05/22 09:48	

LABORATORY CONTROL SAMPLE: 3109703

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	490	98	90-110	

SAMPLE DUPLICATE: 3109704

Parameter	Units	60395733004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	154	152	1	10	

SAMPLE DUPLICATE: 3109705

Parameter	Units	60396339002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	328	330	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780151 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

METHOD BLANK: 3111773 Matrix: Water
Associated Lab Samples: 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/08/22 11:08	

LABORATORY CONTROL SAMPLE: 3111774

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	490	98	90-110	

SAMPLE DUPLICATE: 3111775

Parameter	Units	60396168004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	604	603	0	10	

SAMPLE DUPLICATE: 3112713

Parameter	Units	60396338004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	460	461	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780896
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333005, 60396333006

METHOD BLANK: 3114512 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/13/22 16:56	

LABORATORY CONTROL SAMPLE: 3114513

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	491	98	90-110	

SAMPLE DUPLICATE: 3114516

Parameter	Units	60396332004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	95.3	95.7	0	10	

SAMPLE DUPLICATE: 3114517

Parameter	Units	60396333011 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	291	288	1	10	

SAMPLE DUPLICATE: 3114518

Parameter	Units	60396735001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	437	442	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 781132
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333017, 60396337010

METHOD BLANK: 3115377 Matrix: Water
Associated Lab Samples: 60396333017, 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/13/22 15:06	

LABORATORY CONTROL SAMPLE: 3115378

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

SAMPLE DUPLICATE: 3115380

Parameter	Units	60396333017 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	204	205	1	10	

SAMPLE DUPLICATE: 3115382

Parameter	Units	60396337010 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	567	572	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 781269
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333022, 60396333023

METHOD BLANK: 3115960 Matrix: Water
Associated Lab Samples: 60396333022, 60396333023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/14/22 14:50	

LABORATORY CONTROL SAMPLE: 3115961

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

SAMPLE DUPLICATE: 3115962

Parameter	Units	60396735002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	470	468	0	10	

SAMPLE DUPLICATE: 3115963

Parameter	Units	60396332012 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	186	189	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779231
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337001, 60396337002, 60396337003

METHOD BLANK: 3108391 Matrix: Water
Associated Lab Samples: 60396337001, 60396337002, 60396337003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/01/22 17:19	

LABORATORY CONTROL SAMPLE: 3108392

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	966	97	80-120	

SAMPLE DUPLICATE: 3108393

Parameter	Units	60396337001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	621	613	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779734
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333017

METHOD BLANK: 3110285 Matrix: Water
Associated Lab Samples: 60396333017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/06/22 14:42	

LABORATORY CONTROL SAMPLE: 3110286

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

SAMPLE DUPLICATE: 3110287

Parameter	Units	60396332004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1360	1310	4	10	

SAMPLE DUPLICATE: 3110288

Parameter	Units	60396332003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	833	835	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780233 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333005, 60396333006, 60396337004, 60396337005, 60396337006, 60396337007, 60396337008

METHOD BLANK: 3112059 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006, 60396337004, 60396337005, 60396337006, 60396337007, 60396337008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/07/22 16:11	

LABORATORY CONTROL SAMPLE: 3112060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	972	97	80-120	

SAMPLE DUPLICATE: 3112061

Parameter	Units	60396333011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	534	515	4	10	

SAMPLE DUPLICATE: 3112062

Parameter	Units	60396338004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	578	589	2	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780462
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333022, 60396333023, 60396337009, 60396337010

METHOD BLANK: 3112983 Matrix: Water
Associated Lab Samples: 60396333022, 60396333023, 60396337009, 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/08/22 15:17	

LABORATORY CONTROL SAMPLE: 3112984

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	980	98	80-120	

SAMPLE DUPLICATE: 3112985

Parameter	Units	60396735004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	523	3	10	

SAMPLE DUPLICATE: 3112986

Parameter	Units	60396757006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4640	5210	12	10	D6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 787090
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337010

METHOD BLANK: 3137539 Matrix: Water
Associated Lab Samples: 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/16/22 18:12	

LABORATORY CONTROL SAMPLE: 3137540

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

SAMPLE DUPLICATE: 3137541

Parameter	Units	60396337010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1170	1180	1	10	H1

SAMPLE DUPLICATE: 3137542

Parameter	Units	60396735001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	530	517	2	10	H1

SAMPLE DUPLICATE: 3137543

Parameter	Units	60397347001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	474	489	3	10	H1

SAMPLE DUPLICATE: 3137544

Parameter	Units	60397479003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	433	444	3	10	H1

SAMPLE DUPLICATE: 3137545

Parameter	Units	60397347017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	815	821	1	10	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779018
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337001, 60396337002, 60396337003

METHOD BLANK: 3107513 Matrix: Water
Associated Lab Samples: 60396337001, 60396337002, 60396337003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/02/22 01:00	
Fluoride	mg/L	<0.12	0.20	0.12	04/02/22 01:00	
Sulfate	mg/L	<0.55	1.0	0.55	04/02/22 01:00	

LABORATORY CONTROL SAMPLE: 3107514

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE SAMPLE: 3107517

Parameter	Units	60396337001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	33.4	50	77.9	89	80-120	
Fluoride	mg/L	<0.12	2.5	2.8	108	80-120	
Sulfate	mg/L	65.0	50	114	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3107518 3107519

Parameter	Units	60396339002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.4	5	5	8.0	8.0	92	92	80-120	0	15	
Fluoride	mg/L	0.34	2.5	2.5	3.0	3.0	105	106	80-120	1	15	
Sulfate	mg/L	79.0	25	25	105	108	106	115	80-120	2	15	E

SAMPLE DUPLICATE: 3107520

Parameter	Units	60396339002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	3.4	3.4	0	15	
Fluoride	mg/L	0.34	0.35	1	15	
Sulfate	mg/L	79.0	78.9	0	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 779776
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333005, 60396333006, 60396337010

METHOD BLANK: 3110383 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006, 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/06/22 09:21	
Fluoride	mg/L	<0.12	0.20	0.12	04/06/22 09:21	
Sulfate	mg/L	<0.55	1.0	0.55	04/06/22 09:21	

METHOD BLANK: 3114219 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006, 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/07/22 09:06	
Fluoride	mg/L	<0.12	0.20	0.12	04/07/22 09:06	
Sulfate	mg/L	<0.55	1.0	0.55	04/07/22 09:06	

METHOD BLANK: 3114244 Matrix: Water
Associated Lab Samples: 60396333005, 60396333006, 60396337010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/08/22 09:08	
Fluoride	mg/L	<0.12	0.20	0.12	04/08/22 09:08	
Sulfate	mg/L	<0.55	1.0	0.55	04/08/22 09:08	

LABORATORY CONTROL SAMPLE: 3110384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 3114220

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

LABORATORY CONTROL SAMPLE: 3114245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110385 3110386

Parameter	Units	60396337010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	88.7	100	100	181	179	93	90	80-120	2	15	
Fluoride	mg/L	0.28	2.5	2.5	2.6	2.6	92	93	80-120	1	15	
Sulfate	mg/L	299	100	100	405	393	106	94	80-120	3	15	E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110389 3110390

Parameter	Units	60396333011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	9.7	5	5	14.6	14.8	98	102	80-120	1	15	
Fluoride	mg/L	0.22	2.5	2.5	2.8	2.9	102	107	80-120	4	15	
Sulfate	mg/L	112	50	50	164	183	103	142	80-120	11	15	M1

SAMPLE DUPLICATE: 3110388

Parameter	Units	60396337010 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	88.7	86.4	3	15	
Fluoride	mg/L	0.28	0.26	6	15	
Sulfate	mg/L	299	290	3	15	

SAMPLE DUPLICATE: 3110391

Parameter	Units	60396333011 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	9.7	9.7	0	15	
Fluoride	mg/L	0.22	0.22	0	15	
Sulfate	mg/L	112	107	5	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 780287
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

METHOD BLANK: 3112201 Matrix: Water
Associated Lab Samples: 60396337004, 60396337005, 60396337006, 60396337007, 60396337008, 60396337009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/08/22 10:44	
Fluoride	mg/L	<0.12	0.20	0.12	04/08/22 10:44	
Sulfate	mg/L	<0.55	1.0	0.55	04/08/22 10:44	

LABORATORY CONTROL SAMPLE: 3112202

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3112203 3112204

Parameter	Units	60396338004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	8.5	5	5	13.4	13.4	97	98	80-120	0	15	
Fluoride	mg/L	0.38	2.5	2.5	3.0	3.0	103	107	80-120	3	15	
Sulfate	mg/L	63.9	25	25	87.8	86.6	95	91	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3112206 3112207

Parameter	Units	60396332004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	15.5	5	5	20.8	20.8	105	105	80-120	0	15	E
Fluoride	mg/L	0.77	2.5	2.5	3.5	3.5	110	111	80-120	1	15	
Sulfate	mg/L	773	500	500	1300	1290	104	104	80-120	0	15	

SAMPLE DUPLICATE: 3112205

Parameter	Units	60396338004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	8.5	8.5	0	15	
Fluoride	mg/L	0.38	0.37	1	15	
Sulfate	mg/L	63.9	62.0	3	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

SAMPLE DUPLICATE: 3112208

Parameter	Units	60396332004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	15.5	15.5	0	15	
Fluoride	mg/L	0.77	0.78	2	15	
Sulfate	mg/L	773	781	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

QC Batch: 781385
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60396333017, 60396333022, 60396333023

METHOD BLANK: 3116408 Matrix: Water
Associated Lab Samples: 60396333017, 60396333022, 60396333023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/15/22 13:11	
Fluoride	mg/L	<0.12	0.20	0.12	04/15/22 13:11	
Sulfate	mg/L	<0.55	1.0	0.55	04/15/22 13:11	

METHOD BLANK: 3119073 Matrix: Water
Associated Lab Samples: 60396333017, 60396333022, 60396333023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.66J	1.0	0.53	04/18/22 09:21	
Fluoride	mg/L	<0.12	0.20	0.12	04/18/22 09:21	
Sulfate	mg/L	<0.55	1.0	0.55	04/18/22 09:21	

LABORATORY CONTROL SAMPLE: 3116409

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 3119074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	90	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3116410 3116411

Parameter	Units	60397013002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	82.8	25	25	115	106	130	95	80-120	8	15	E,M1
Fluoride	mg/L	ND	12.5	12.5	16.3	13.2	130	106	80-120	21	15	M1,R1
Sulfate	mg/L	41.0	25	25	72.3	65.1	125	97	80-120	10	15	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60396337001	S-LMW-3S	EPA 200.7	779353	EPA 200.7	779414
60396337002	S-BMW-1S	EPA 200.7	780187	EPA 200.7	780329
60396337003	S-BMW-3S	EPA 200.7	780187	EPA 200.7	780329
60396333005	S-LMW-6S	EPA 200.7	780254	EPA 200.7	780345
60396333006	S-LMW-5S	EPA 200.7	780254	EPA 200.7	780345
60396333017	S-LMW-1S	EPA 200.7	780254	EPA 200.7	780345
60396337004	S-LMW-7S	EPA 200.7	780187	EPA 200.7	780329
60396337005	S-LMW-8S	EPA 200.7	780187	EPA 200.7	780329
60396337006	S-LMW-DUP-1	EPA 200.7	780187	EPA 200.7	780329
60396337007	S-LMW-DUP-2	EPA 200.7	780187	EPA 200.7	780329
60396337008	S-LMW-FB-1	EPA 200.7	780187	EPA 200.7	780329
60396337009	S-LMW-FB-2	EPA 200.7	780187	EPA 200.7	780329
60396333022	S-LMW-4S	EPA 200.7	780254	EPA 200.7	780345
60396333023	S-LMW-2S	EPA 200.7	780254	EPA 200.7	780345
60396337010	S-LMW-9S	EPA 200.7	780191	EPA 200.7	780331
60396337001	S-LMW-3S	SM 2320B	779612		
60396337002	S-BMW-1S	SM 2320B	779612		
60396337003	S-BMW-3S	SM 2320B	779612		
60396333005	S-LMW-6S	SM 2320B	780896		
60396333006	S-LMW-5S	SM 2320B	780896		
60396333017	S-LMW-1S	SM 2320B	781132		
60396337004	S-LMW-7S	SM 2320B	780151		
60396337005	S-LMW-8S	SM 2320B	780151		
60396337006	S-LMW-DUP-1	SM 2320B	780151		
60396337007	S-LMW-DUP-2	SM 2320B	780151		
60396337008	S-LMW-FB-1	SM 2320B	780151		
60396337009	S-LMW-FB-2	SM 2320B	780151		
60396333022	S-LMW-4S	SM 2320B	781269		
60396333023	S-LMW-2S	SM 2320B	781269		
60396337010	S-LMW-9S	SM 2320B	781132		
60396337001	S-LMW-3S	SM 2540C	779231		
60396337002	S-BMW-1S	SM 2540C	779231		
60396337003	S-BMW-3S	SM 2540C	779231		
60396333005	S-LMW-6S	SM 2540C	780233		
60396333006	S-LMW-5S	SM 2540C	780233		
60396333017	S-LMW-1S	SM 2540C	779734		
60396337004	S-LMW-7S	SM 2540C	780233		
60396337005	S-LMW-8S	SM 2540C	780233		
60396337006	S-LMW-DUP-1	SM 2540C	780233		
60396337007	S-LMW-DUP-2	SM 2540C	780233		
60396337008	S-LMW-FB-1	SM 2540C	780233		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPB
Pace Project No.: 60396337

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60396337009	**S-LMW-FB-2**	SM 2540C	780462		
60396333022	**S-LMW-4S**	SM 2540C	780462		
60396333023	**S-LMW-2S**	SM 2540C	780462		
60396337010	**S-LMW-9S**	SM 2540C	780462		
60396337010	**S-LMW-9S**	SM 2540C	787090		
60396337001	**S-LMW-3S**	EPA 300.0	779018		
60396337002	**S-BMW-1S**	EPA 300.0	779018		
60396337003	**S-BMW-3S**	EPA 300.0	779018		
60396333005	**S-LMW-6S**	EPA 300.0	779776		
60396333006	**S-LMW-5S**	EPA 300.0	779776		
60396333017	**S-LMW-1S**	EPA 300.0	781385		
60396337004	**S-LMW-7S**	EPA 300.0	780287		
60396337005	**S-LMW-8S**	EPA 300.0	780287		
60396337006	**S-LMW-DUP-1**	EPA 300.0	780287		
60396337007	**S-LMW-DUP-2**	EPA 300.0	780287		
60396337008	**S-LMW-FB-1**	EPA 300.0	780287		
60396337009	**S-LMW-FB-2**	EPA 300.0	780287		
60396333022	**S-LMW-4S**	EPA 300.0	781385		
60396333023	**S-LMW-2S**	EPA 300.0	781385		
60396337010	**S-LMW-9S**	EPA 300.0	779776		

WO# : 60396337

60396337

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

Client Name: Golder

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

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

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

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

Thermometer Used: T299 **Type of Ice:** ~~Wet~~ Blue None

Cooler Temperature (°C): **As-read** 1.8/1.1 **Corr. Factor** −0.2 **Corrected** 1.6/0.9/14.6

Date and initials of person examining contents: PV 3/30/22

Temperature should be above freezing to 6°C 14.8

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 55192/55193	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — Required Client Information:

Company:	Golder Associates
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604. 0003

Section C — Invoice Information:

Attention:	
Company Name:	Golder Associates USA, Inc.
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	N		60396337
1	S-LMW-1S	WT	G																					
2	S-LMW-2S	WT	G																					
3	S-LMW-3S	WT	G			3/28/22	1305		2	1		1							✓	✓	✓	✓		BP3N BP1U
4	S-LMW-4S	WT	G																					
5	S-LMW-5S	WT	G																					
6	S-LMW-6S	WT	G																					
7	S-LMW-7S	WT	G																					
8	S-LMW-8S	WT	G																					
9	S-LMW-9S	WT	G																					
10	S-BMW-1S	WT	G			3/24/22	1400		2	1		1							✓	✓	✓	✓	2BP1N	
11	S-BMW-3S	WT	G			"	1220		"	"		"							✓	✓	✓	✓		BP3U BP3Z
12	S-LMW-DUP-1	WT	G																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	[signature]	3/24/22	1630	Angela Nemaus	3/29	1630
	Angela Nemaus	3/29	1630	[signature] PAST	3/30	0423

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	1.6	Y	Y	Y
	0.9	↓	↓	↓
	14.6	N	↓	↓

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/29/2022

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

WO# : 60396337

60396337

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

Client Name: Golder Assoc

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

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

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

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

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

Cooler Temperature (°C): **As-read** 1.5 **Corr. Factor** -0.2 **Corrected** 1.3

Date and initials of person examining contents: VRB 4/2/22

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	Did not receive volume for S-LMW-15, S-LMW-55, VRB 4/2/22 OR S-LMW-65, S-LMW-MS-1 and S-LMW-MSD-1
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 55192	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	Golder Associates
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604. 0003

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates USA, Inc.
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N	N			
1	S-LMW-1S	WT	G			3-31-22	1452		2	1		1							/	/	/	/		10396837	
2	S-LMW-2S	WT	G																						
3	S-LMW-3S	WT	G																						
4	S-LMW-4S	WT	G																						
5	S-LMW-5S	WT	G			4-1-22	0927		2	1		1							/	/	/	/			
6	S-LMW-6S	WT	G			"	1233		2	1		1							/	/	/	/			
7	S-LMW-7S	WT	G			"	1314		1	1		1							1	1	1	1			
8	S-LMW-8S	WT	G			"	1500		1	1		1							1	1	1	1			
9	S-LMW-9S	WT	G																						
10	S-BMW-1S	WT	G																						
11	S-BMW-3S	WT	G																						
12	S-LMW-DUP-1	WT	G			4-1-22	—		2	1		1							/	/	/	/			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	Brendan Talbert / Golder	4-1-22	1640	Pace	4/2/22	0300	1.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert DATE Signed (MM/DD/YY): 04/01/22

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

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

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	Golder Associates
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604. 0003

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates USA, Inc.
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	~~S-LMW-1S~~ S-LMW-DUP-2	WT	G			4-1-22	—		2	1		1							Y	N	N	N	N	
2	~~S-LMW-2S~~ S-LMW-FB-1	WT	G			1	1359		1	1		1												
3	~~S-LMW-3S~~ S-LMW-FB-2	WT	G			1	1515		1	1		1												
4	~~S-LMW-4S~~ S-LMW-MS-1	WT	G																					
5	S-LMW-5S S-LMW-MSD-1	WT	G																					
6	S-LMW-6S	WT	G																					
7	S-LMW-7S	WT	G																					
8	S-LMW-8S	WT	G																					
9	S-LMW-9S	WT	G																					
10	S-BMW-1S	WT	G																					
11	S-BMW-3S	WT	G																					
12	S-LMW-DUP-1	WT	G																					

Requested Analysis Filtered (Y/N)

600396337

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	Brendan Talbert/Golder	4-1-22	1640	Victor B Pace	4/2/22	0300	1.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert DATE Signed (MM/DD/YY): 04/01/22

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

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Sample Co	WO# : 60396337
	Revision: 2	Effective Date: 01/12/2022

60396337

Client Name: Golder

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

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

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

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

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

Cooler Temperature (°C): **As-read** 1-9 **Corr. Factor** -.02 **Corrected** 1.7

Date and initials of person examining contents: AY 4/5/22

Temperature should be above freezing to 6°C

Chain of Custody present:	☐Yes ☐No ☐N/A	
Chain of Custody relinquished:	☐Yes ☐No ☐N/A	
Samples arrived within holding time:	☐Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☐No ☐N/A	
Sufficient volume:	☐Yes ☐No ☐N/A	
Correct containers used:	☐Yes ☐No ☐N/A	
Pace containers used:	☐Yes ☐No ☐N/A	
Containers intact:	☐Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☐Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☐No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 55192	☐Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☐N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☐N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	Golder Associates
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert
Purchase Order No.:	~~COC #10~~ 9
Project Name:	Ameren Sioux Energy Center SCP 2B
Project Number:	153140604. 0003

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates USA, Inc.
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)
1	~~S-UG-1A~~ S-LMW-2S	WT	G			4/4/22	1210		7	1		1						N	X	X	X	X	
2	~~S-UG-2~~ S-LMW-4S	WT	G				1305											N					
3	~~S-DG-1~~ S-LMW-9S	WT	G				0940											N					
4	~~S-DG-2~~ S-LMW-MS-1	WT	G				0940											N					
5	~~S-DG-3~~ S-LMW-MSD-1	WT	G				0940											N					
6	~~S-DG-4~~	WT	G															N					
7	S-SCPC-DUP-1	WT	G															N					
8	S-SCPC-FB-1	WT	G															N					
9	S-BMW-1S	WT	G															N					
10	S-BMW-3S	WT	G															N					
11	S-SCPC-MS-1	WT	G															N					
12	S-SCPC-MSD-1	WT	G															N					

Residual Chlorine (Y/N)

60396337
Pace Project No./ Lab I.D.

MS/MSD taken at LMW-9S @ 0940
3BP3N 3BP1U

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	[signature]	4/14/22	1545	Angela Mcman	4/4	1545	
	Angela Mcman	4/4	1545	[signature]	4/5/22	0432	1.7 Y Y X

SAMPLER NAME AND SIGNATURE				
PRINT Name of SAMPLER:	Eric Schneider			
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY):	04/14/22	

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

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

MEMORANDUM

DATE June 7, 2022 **Project No.** 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth **EMAIL ann.muehlfarth@wsp.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – DETECTION MONITORING - DATA PACKAGE 60396337

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

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a compound was analyzed outside of hold time, associated sample results were qualified as estimates (J for detects, UJ for non-detects).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates USA Inc
Project Manager: J. Ingram
Project Name: Ameren - SEC - SCPB
Project Number: GL153140604.0003
Reviewer: A. Muehlfarth
Validation Date: 6/7/2022

Laboratory: Pace Analytical
SDG #: 60396337
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names S-LMW-3S, S-LMW-7S, S-LMW-8S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-9S, S-LMW-1S, S-LMW-2S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			3/28/2022 - 4/1/2022
b) Sampling team indicated?	x			BTT/EMS/GTM
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

TDS was re-analyzed outside of hold time in S-LMW-9S. Result qualified as an estimate.

Calcium, magnesium, sodium, chloride, and sulfate analyzed at a dilution in several samples. No qualification necessary.

Blanks:

MB 3111927: Magnesium (16.6J), associated with sample -37010. Sample result >RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB 3112107: Magnesium (13.2J), Manganese (1.3J), associated with samples -3005, -3006, -3017, -3022, -3023.
Sample results >RL and 10x blank, no qualification necessary.

MB 3119073: Chloride (0.66J), associated with samples -3017, -3022, -3023.
Sample results >RL and 10x blank not qualified. Results >RL but <10x blank qualified as estimates.

S-LMW-FB-1 @ S-LMW-7S: TDS (9.5). Sample result >RL and 10x blank, no qualification necessary.

S-LMW-FB-2 @ S-LMW-8S: Magnesium (13.3J), TDS (5.5). Sample results >RL and 10x blank, no qualification necessary.

Duplicates:

S-LMW-DUP-1 @ S-LMW-7S: Calcium is ND in parent, detected in dup; dup RPD exceeds limit (20%) for magnesium (23.8%), sulfate (27.8%)

S-LMW-DUP-2 @ S-LMW-8S: Max RPD 3.2% (<20%).

Lab Sample Duplicate 3112986: RPD (12%) exceeds limit (10%) for TDS. Performed on unrelated sample, no qualification necessaries.

MS/MSD:

3108938/3108939: MSD % recovery low for calcium. MS/MSD performed on unrelated sample, no qualification necessary.

3111913: MS % recovery high for calcium, sodium. MS/MSD performed on unrelated sample, no qualification necessary.

3111929/3111930: MS % recovery high for calcium; MSD % recovery low for magnesium. Only 1 QC indicator outside of control limits, no qualification necessary. Associated with sample -7010

3111931/3111932: MSD % recovery high for calcium. MS/MSD performed on unrelated sample, no qualification necessary.

3112111/3112112: MS % recovery high for calcium. MS/MSD performed on unrelated sample, no qualification necessary.

3110389/3110390: MSD % recovery high for sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

3116410/3116411: MS % recovery high for chloride and sulfate. Only 1 QC indicator outside of control limit, no qualification necessary.
MS % recovery and RPD high for fluoride. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-9S (re-analysis)	TDS	1170	J	Analyzed outside of hold time
S-LMW-4S	Chloride	5.7	J	Detected in MB, 10x blank > result > RL
S-LMW-7S	Calcium	214	UJ	ND in parent sample, detect in dup
"	Magnesium	49900	J	Dup RPD exceeds limit
"	Sulfate	483	J	"
S-LMW-DUP-1	Calcium	226000	J	ND in parent sample, detect in dup
"	Magnesium	63400	J	Dup RPD exceeds limit
"	Sulfate	365	J	"

Signature: Ann Muehlfarth Date: 6/7/2022

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

June 17, 2022

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

RE: Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on June 08, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

cc: Ryan Feldmann, Golder
Mark Haddock, Golder Associates
Eric Schneider, Golder Associates
Brendan Talbert, Golder Associates

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

CERTIFICATIONS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 2000302021-3
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-21-15
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60402319001	**S-LMW-3S**	Water	06/07/22 10:00	06/08/22 05:26
60402319002	**S-LMW-4S**	Water	06/07/22 10:28	06/08/22 05:26
60402319003	**S-SCPB-DUP-1**	Water	06/07/22 00:00	06/08/22 05:26
60402319004	**S-SCPB-FB-1**	Water	06/07/22 10:10	06/08/22 05:26

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

SAMPLE ANALYTE COUNT

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60402319001	**S-LMW-3S**	EPA 300.0	KB	1	PASI-K
60402319002	**S-LMW-4S**	EPA 300.0	KB	1	PASI-K
60402319003	**S-SCPB-DUP-1**	EPA 300.0	KB	1	PASI-K
60402319004	**S-SCPB-FB-1**	EPA 300.0	KB	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Sample: S-LMW-3S **Lab ID: 60402319001** Collected: 06/07/22 10:00 Received: 06/08/22 05:26 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**43.4**	mg/L	10.0	5.5	10		06/10/22 21:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Sample: S-LMW-4S **Lab ID: 60402319002** Collected: 06/07/22 10:28 Received: 06/08/22 05:26 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**109**	mg/L	10.0	5.5	10		06/10/22 23:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Sample: S-SCPB-DUP-1 **Lab ID: 60402319003** Collected: 06/07/22 00:00 Received: 06/08/22 05:26 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**50.0**	mg/L	10.0	5.5	10		06/14/22 17:31	14808-79-8	L2

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Sample: S-SCPB-FB-1 **Lab ID: 60402319004** Collected: 06/07/22 10:10 Received: 06/08/22 05:26 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**<0.55**	mg/L	1.0	0.55	1		06/13/22 11:37	14808-79-8	L2

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

QC Batch: 791498
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60402319001, 60402319002

METHOD BLANK: 3153961 Matrix: Water
Associated Lab Samples: 60402319001, 60402319002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	06/10/22 18:17	

LABORATORY CONTROL SAMPLE: 3153962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3153963 3153964

Parameter	Units	60402314001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	50.5	25	250	70.2	427	79	151	80-120	144	15	E,M1, R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3153966 3153967

Parameter	Units	60402318001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	52.0	25	25	74.2	74.4	89	90	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3153969 3153970

Parameter	Units	60402319001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	43.4	50	50	90.1	89.4	94	92	80-120	1	15	

SAMPLE DUPLICATE: 3153965

Parameter	Units	60402314001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	50.5	48.4	4	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

SAMPLE DUPLICATE: 3153968

Parameter	Units	60402318001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	52.0	50.1	4	15	

SAMPLE DUPLICATE: 3153971

Parameter	Units	60402319001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	43.4	43.1	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

QC Batch: 791719
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60402319003, 60402319004

METHOD BLANK: 3154804 Matrix: Water
Associated Lab Samples: 60402319003, 60402319004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	06/13/22 09:04	

METHOD BLANK: 3156690 Matrix: Water
Associated Lab Samples: 60402319003, 60402319004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	06/14/22 08:53	

METHOD BLANK: 3157519 Matrix: Water
Associated Lab Samples: 60402319003, 60402319004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	06/14/22 15:05	

LABORATORY CONTROL SAMPLE: 3154805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 3157520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max 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

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

QUALITY CONTROL DATA

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

SAMPLE DUPLICATE: 3154812

Parameter	Units	60401800001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	3140	2960	6	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

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.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN VERIFICATION SCPB
Pace Project No.: 60402319

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60402319001	**S-LMW-3S**	EPA 300.0	791498		
60402319002	**S-LMW-4S**	EPA 300.0	791498		
60402319003	**S-SCPB-DUP-1**	EPA 300.0	791719		
60402319004	**S-SCPB-FB-1**	EPA 300.0	791719		

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Samp	WO# : 60402319
	Revision: 2	Effective Date: 01/12/2(

60402319

Client Name: Golder

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

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

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

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

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

Cooler Temperature (°C): **As-read** 2.1 **Corr. Factor** -1.0 **Corrected** 1.1

Date and initials of person examining contents: 06-08-2025

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — Required Client Information:

Company:	Golder Associates
Address:	13515 Barrett Parkway Dr., Ste 260
	Ballwin, MO 63021
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman, Brendan Talbert
Purchase Order No.:	
Project Name:	Ameren - Verification Sampling - SCPB
Project Number:	153140603

Section C — Invoice Information:

Attention:	
Company Name:	Golder Associates Inc
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285, line 1

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Boron	Sulfate	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-3S	WT	G			6-7-22	1000		1	1										1			6040 2319
2	S-LMW-4S	WT	G				1028																
3	S-SCPB-MS-1	WT	G				1000																
4	S-SCPB-MSD-1	WT	G				1000																
5	S-SCPB-Dup-1	WT	G				—																
6	S-SCPB-FB-1	WT	G				1010																
7		WT	G																				
8		WT	G																				
9		WT	G																				
10		WT	G																				
11		WT	G																				
12		WT	G																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Morey / Golder	6-7-22	1151	Angela McManus	6-7	1151				
	Angela McManus	6-7	1151		6-8-22	0526	1.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: Grant Morey

DATE Signed (MM/DD/YY): 06/07/22

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

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

MEMORANDUM

DATE July 8, 2022 153140604.0003

TO Project Files
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth **EMAIL ann.muehlfarth@wsp.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – VERIFICATION SAMPLING - DATA PACKAGE 60402319

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: Golder Associates USA Inc
Project Name: Ameren - SEC - SCPB
Reviewer: A. Muehlfarth

Project Manager: J. Ingram
Project Number: GL153140604.0003
Validation Date: 7/8/2022

Laboratory: Pace Analytica
SDG #: 60402319
Analytical Method (type and no.): EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names S-LMW-3S, S-LMW-4S, S-SCPB-DUP-1, S-SCPB-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?	☒	☐	☐	6/7/2022
b) Sampling team indicated?	☒	☐	☐	BTT/GTM
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	See Notes
g) Field parameters collected (note types)?	☒	☐	☐	pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies:

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

General (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?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☒	☐	☐	See Notes
g) Were any matrix problems noted?	☒	☐	☐	See Notes

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	☒	☐	
b) Were analytes detected in the field blank(s)?	☐	☒	☐	S-SCPB-FB-1 @ S-LMW-3S
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	S-SCPB-DUP-1 @ S-LMW-3S
b) Were field dup. precision criteria met (note RPD)?	☒	☐	☐	Max RPD: 14.1% [<20%]
c) Were lab duplicates analyzed (note original and duplicate samples)?	☒	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☒	☐	☐	Max RPD: 6% [<15%]

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

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

Comments/Notes:

Sulfate analyzed at a dilution in several samples, no qualification necessary.

MS/MSD:

3153963/3153964: MS % recovery low, MSD % recovery high, and RPD high for sulfate. MS/MSD performed on unrealted sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: Ann Muehlforth   Date: 7/8/2022

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

November 22, 2022

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

RE: Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between October 20, 2022 and October 21, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

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

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

SAMPLE SUMMARY

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60413480001	S-LMW-FB-1	Water	10/18/22 11:03	10/20/22 04:13
60413480002	S-LMW-FB-2	Water	10/18/22 12:20	10/20/22 04:13
60413480003	S-LMW-9S	Water	10/19/22 10:07	10/20/22 04:13
60413480004	S-LMW-DUP-2	Water	10/18/22 00:00	10/20/22 04:13
60413480005	S-LMW-7S	Water	10/18/22 10:48	10/20/22 04:13
60413480006	S-LMW-8S	Water	10/18/22 12:10	10/20/22 04:13
60413480007	S-LMW-DUP-1	Water	10/18/22 00:00	10/20/22 04:13
60413480008	S-LMW-3S	Water	10/20/22 12:19	10/21/22 17:48
60413477007	S-LMW-1S	Water	10/19/22 11:40	10/20/22 04:13
60413477006	S-LMW-2S	Water	10/19/22 13:36	10/20/22 04:13
60413477025	S-LMW-4S	Water	10/20/22 13:31	10/21/22 17:48
60413477008	S-LMW-5S	Water	10/18/22 14:55	10/20/22 04:13
60413477024	S-LMW-6S	Water	10/20/22 15:19	10/21/22 17:48
60413477005	S-BMW-1S	Water	10/18/22 15:35	10/20/22 04:13
60413477004	S-BMW-3S	Water	10/18/22 14:06	10/20/22 04:13

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

SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60413480001	S-LMW-FB-1	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480002	S-LMW-FB-2	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480003	S-LMW-9S	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480004	S-LMW-DUP-2	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480005	S-LMW-7S	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480006	S-LMW-8S	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480007	S-LMW-DUP-1	EPA 200.7	JDS	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413480008	S-LMW-3S	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477007	S-LMW-1S	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477006	S-LMW-2S	EPA 200.7	MA1	7	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477025	**S-LMW-4S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477008	**S-LMW-5S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	CRN2, RKA	3	PASI-K
60413477024	**S-LMW-6S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477005	**S-BMW-1S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477004	**S-BMW-3S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-FB-1 **Lab ID: 60413480001** Collected: 10/18/22 11:03 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<4.2**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 14:48	7440-42-8	
Calcium	**<33.7**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 14:48	7440-70-2	
Iron	**10.8J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 14:48	7439-89-6	B
Magnesium	**<27.1**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 14:48	7439-95-4	
Manganese	**<0.24**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 14:48	7439-96-5	
Potassium	**<87.6**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 14:48	7440-09-7	
Sodium	**167J**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 14:48	7440-23-5	B
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**6.1J**	mg/L	20.0	4.6	1		10/26/22 15:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**0.53J**	mg/L	1.0	0.53	1		11/04/22 15:08	16887-00-6	B
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/04/22 15:08	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		11/04/22 15:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-FB-2 **Lab ID: 60413480002** Collected: 10/18/22 12:20 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<4.2**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 14:50	7440-42-8	
Calcium	**<33.7**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 14:50	7440-70-2	
Iron	**6.4J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 14:50	7439-89-6	B
Magnesium	**<27.1**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 14:50	7439-95-4	
Manganese	**<0.24**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 14:50	7439-96-5	
Potassium	**<87.6**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 14:50	7440-09-7	
Sodium	**<73.2**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 14:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<4.6**	mg/L	20.0	4.6	1		10/26/22 16:07		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**7.0**	mg/L	5.0	5.0	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		11/04/22 15:23	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/04/22 15:23	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		11/04/22 15:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-9S **Lab ID: 60413480003** Collected: 10/19/22 10:07 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1330**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 14:58	7440-42-8	
Calcium	**216000**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 14:58	7440-70-2	M1
Iron	**63.3**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 14:58	7439-89-6	B
Magnesium	**73900**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 14:58	7439-95-4	M1
Manganese	**424**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 14:58	7439-96-5	
Potassium	**4760**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 14:58	7440-09-7	
Sodium	**49100**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 14:58	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**610**	mg/L	20.0	4.6	1		10/27/22 15:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1160**	mg/L	13.3	13.3	1		10/26/22 16:21		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**86.4**	mg/L	20.0	10.5	20		11/04/22 16:36	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	0.12	1		11/04/22 15:38	16984-48-8	
Sulfate	**285**	mg/L	20.0	11.0	20		11/04/22 16:36	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-DUP-2 **Lab ID: 60413480004** Collected: 10/18/22 00:00 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3410**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 15:04	7440-42-8	
Calcium	**188000**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 15:04	7440-70-2	
Iron	**27.5J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 15:04	7439-89-6	B
Magnesium	**46600**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 15:04	7439-95-4	
Manganese	**822**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 15:04	7439-96-5	
Potassium	**4240**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 15:04	7440-09-7	
Sodium	**43900**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 15:04	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**388**	mg/L	20.0	4.6	1		10/26/22 16:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1140**	mg/L	13.3	13.3	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**55.5**	mg/L	50.0	26.4	50		11/08/22 00:45	16887-00-6	B
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/08/22 00:30	16984-48-8	
Sulfate	**327**	mg/L	50.0	27.5	50		11/08/22 00:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-7S **Lab ID: 60413480005** Collected: 10/18/22 10:48 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**2440**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 15:06	7440-42-8	
Calcium	**206000**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 15:06	7440-70-2	
Iron	**10.6J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 15:06	7439-89-6	B
Magnesium	**56900**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 15:06	7439-95-4	
Manganese	**438**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 15:06	7439-96-5	
Potassium	**3800**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 15:06	7440-09-7	
Sodium	**16900**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 15:06	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**451**	mg/L	20.0	4.6	1		10/26/22 16:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1230**	mg/L	13.3	13.3	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**62.9**	mg/L	50.0	26.4	50		11/04/22 18:18	16887-00-6	B
Fluoride	**0.18J**	mg/L	0.20	0.12	1		11/04/22 18:03	16984-48-8	
Sulfate	**323**	mg/L	50.0	27.5	50		11/04/22 18:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-8S **Lab ID: 60413480006** Collected: 10/18/22 12:10 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3290**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 15:08	7440-42-8	
Calcium	**176000**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 15:08	7440-70-2	
Iron	**21.8J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 15:08	7439-89-6	B
Magnesium	**42800**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 15:08	7439-95-4	
Manganese	**784**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 15:08	7439-96-5	
Potassium	**4050**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 15:08	7440-09-7	
Sodium	**41700**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 15:08	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**393**	mg/L	20.0	4.6	1		10/26/22 16:23		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1150**	mg/L	13.3	13.3	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**60.5**	mg/L	50.0	26.4	50		11/04/22 18:47	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.12	1		11/04/22 18:33	16984-48-8	
Sulfate	**315**	mg/L	50.0	27.5	50		11/04/22 18:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-DUP-1 **Lab ID: 60413480007** Collected: 10/18/22 00:00 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**2590**	ug/L	100	4.2	1	10/21/22 11:03	10/28/22 15:10	7440-42-8	
Calcium	**220000**	ug/L	200	33.7	1	10/21/22 11:03	10/28/22 15:10	7440-70-2	
Iron	**10.2J**	ug/L	50.0	5.6	1	10/21/22 11:03	10/28/22 15:10	7439-89-6	B
Magnesium	**60900**	ug/L	50.0	27.1	1	10/21/22 11:03	10/28/22 15:10	7439-95-4	
Manganese	**436**	ug/L	5.0	0.24	1	10/21/22 11:03	10/28/22 15:10	7439-96-5	
Potassium	**4030**	ug/L	500	87.6	1	10/21/22 11:03	10/28/22 15:10	7440-09-7	
Sodium	**18200**	ug/L	500	73.2	1	10/21/22 11:03	10/28/22 15:10	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**454**	mg/L	20.0	4.6	1		10/26/22 16:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1260**	mg/L	13.3	13.3	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**15.9**	mg/L	1.0	0.53	1		11/04/22 19:02	16887-00-6	
Fluoride	**0.16J**	mg/L	0.20	0.12	1		11/04/22 19:02	16984-48-8	
Sulfate	**417**	mg/L	50.0	27.5	50		11/04/22 19:16	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-3S **Lab ID: 60413480008** Collected: 10/20/22 12:19 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**205**	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 14:15	7440-42-8	
Calcium	**169000**	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 14:15	7440-70-2	
Iron	**12.6J**	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 14:15	7439-89-6	
Magnesium	**35700**	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 14:15	7439-95-4	
Manganese	**7.7**	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 14:15	7439-96-5	
Potassium	**4570**	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 14:15	7440-09-7	
Sodium	**15700**	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 14:15	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**471**	mg/L	20.0	4.6	1		10/27/22 16:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**626**	mg/L	10.0	10.0	1		10/27/22 16:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**20.0**	mg/L	1.0	0.53	1		11/07/22 20:51	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/07/22 20:51	16984-48-8	
Sulfate	**75.7**	mg/L	5.0	2.8	5		11/07/22 21:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-1S **Lab ID: 60413477007** Collected: 10/19/22 11:40 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**339**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:13	7440-42-8	
Calcium	**85100**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:13	7440-70-2	
Iron	**98.9**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:13	7439-89-6	
Magnesium	**20900**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:13	7439-95-4	
Manganese	**150**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:13	7439-96-5	
Potassium	**6060**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:13	7440-09-7	
Sodium	**16600**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**216**	mg/L	20.0	4.6	1		10/27/22 14:56		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**383**	mg/L	5.0	5.0	1		10/26/22 16:21		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**36.2**	mg/L	20.0	10.5	20		11/04/22 13:55	16887-00-6	B
Fluoride	**0.28**	mg/L	0.20	0.12	1		11/04/22 13:41	16984-48-8	
Sulfate	**83.5**	mg/L	20.0	11.0	20		11/04/22 13:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-2S **Lab ID: 60413477006** Collected: 10/19/22 13:36 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**8550**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:11	7440-42-8	
Calcium	**205000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:11	7440-70-2	
Iron	**150**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:11	7439-89-6	
Magnesium	**38100**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:11	7439-95-4	
Manganese	**625**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:11	7439-96-5	
Potassium	**8160**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:11	7440-09-7	
Sodium	**67600**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**372**	mg/L	20.0	4.6	1		10/27/22 14:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**977**	mg/L	13.3	13.3	1		10/26/22 16:21		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**149**	mg/L	20.0	10.5	20		11/04/22 13:26	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/04/22 13:12	16984-48-8	
Sulfate	**243**	mg/L	20.0	11.0	20		11/04/22 13:26	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-4S **Lab ID: 60413477025** Collected: 10/20/22 13:31 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**375**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 14:08	7440-42-8	
Calcium	**185000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 14:08	7440-70-2	
Iron	**17.0J**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 14:08	7439-89-6	
Magnesium	**43600**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 14:08	7439-95-4	
Manganese	**203**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 14:08	7439-96-5	
Potassium	**5070**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 14:08	7440-09-7	
Sodium	**10800**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 14:08	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**592**	mg/L	20.0	4.6	1		10/28/22 15:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**724**	mg/L	10.0	10.0	1		10/27/22 16:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.1**	mg/L	1.0	0.53	1		11/08/22 18:37	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/08/22 18:37	16984-48-8	
Sulfate	**37.0**	mg/L	5.0	2.8	5		11/08/22 18:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-5S **Lab ID: 60413477008** Collected: 10/18/22 14:55 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**12700**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:15	7440-42-8	
Calcium	**238000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:15	7440-70-2	
Iron	**58.1**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:15	7439-89-6	
Magnesium	**47500**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:15	7439-95-4	
Manganese	**1330**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:15	7439-96-5	
Potassium	**5730**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:15	7440-09-7	
Sodium	**142000**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:15	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**338**	mg/L	20.0	4.6	1		10/26/22 15:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1400**	mg/L	13.3	13.3	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.7**	mg/L	2.0	1.1	2		11/07/22 16:33	16887-00-6	
Fluoride	**0.51**	mg/L	0.20	0.12	1		11/04/22 14:10	16984-48-8	
Sulfate	**868**	mg/L	100	55.0	100		11/04/22 14:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-LMW-6S **Lab ID: 60413477024** Collected: 10/20/22 15:19 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**21600**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 14:06	7440-42-8	
Calcium	**278000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 14:06	7440-70-2	
Iron	**23.8J**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 14:06	7439-89-6	
Magnesium	**66400**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 14:06	7439-95-4	
Manganese	**509**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 14:06	7439-96-5	
Potassium	**4970**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 14:06	7440-09-7	
Sodium	**99600**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 14:06	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**556**	mg/L	20.0	4.6	1		10/28/22 15:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**936**	mg/L	13.3	13.3	1		10/27/22 16:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.7**	mg/L	1.0	0.53	1		11/09/22 16:49	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/09/22 16:49	16984-48-8	
Sulfate	**605**	mg/L	100	55.0	100		11/08/22 18:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-BMW-1S **Lab ID: 60413477005** Collected: 10/18/22 15:35 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**73.0J**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:03	7440-42-8	
Calcium	**168000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:03	7440-70-2	
Iron	**32.9J**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:03	7439-89-6	
Magnesium	**33400**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:03	7439-95-4	
Manganese	**1550**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:03	7439-96-5	
Potassium	**431J**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:03	7440-09-7	
Sodium	**5020**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**479**	mg/L	20.0	4.6	1		10/26/22 15:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**711**	mg/L	10.0	10.0	1		10/25/22 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**9.2**	mg/L	1.0	0.53	1		11/04/22 12:42	16887-00-6	
Fluoride	**0.20J**	mg/L	0.20	0.12	1		11/04/22 12:42	16984-48-8	
Sulfate	**61.1**	mg/L	5.0	2.8	5		11/04/22 12:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Sample: S-BMW-3S **Lab ID: 60413477004** Collected: 10/18/22 14:06 Received: 10/20/22 04:13 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**84.2J**	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:01	7440-42-8	
Calcium	**131000**	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:01	7440-70-2	
Iron	**20.0J**	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:01	7439-89-6	
Magnesium	**23900**	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:01	7439-95-4	
Manganese	**210**	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:01	7439-96-5	
Potassium	**525**	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:01	7440-09-7	
Sodium	**5490**	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:01	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**390**	mg/L	20.0	4.6	1		10/26/22 15:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**467**	mg/L	10.0	10.0	1		10/25/22 10:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**11.7**	mg/L	1.0	0.53	1		11/04/22 12:13	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.12	1		11/04/22 12:13	16984-48-8	
Sulfate	**27.8**	mg/L	5.0	2.8	5		11/04/22 12:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 813930
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413480001, 60413480002, 60413480003, 60413480004, 60413480005, 60413480006, 60413480007

METHOD BLANK: 3236747 Matrix: Water
Associated Lab Samples: 60413480001, 60413480002, 60413480003, 60413480004, 60413480005, 60413480006, 60413480007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<4.2	100	4.2	10/28/22 14:40	
Calcium	ug/L	<33.7	200	33.7	10/28/22 14:40	
Iron	ug/L	8.8J	50.0	5.6	10/28/22 14:40	
Magnesium	ug/L	<27.1	50.0	27.1	10/28/22 14:40	
Manganese	ug/L	0.54J	5.0	0.24	10/28/22 14:40	
Potassium	ug/L	<87.6	500	87.6	10/28/22 14:40	
Sodium	ug/L	74.0J	500	73.2	10/28/22 14:40	

LABORATORY CONTROL SAMPLE: 3236748

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	938	94	85-115	
Calcium	ug/L	10000	9690	97	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	9260	93	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9860	99	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3236749 3236750

Parameter	Units	60413480003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1330	2000	2000	3120	3280	89	98	70-130	5	20	
Calcium	ug/L	216000	20000	20000	222000	233000	31	86	70-130	5	20	M1
Iron	ug/L	63.3	20000	20000	19500	20500	97	102	70-130	5	20	
Magnesium	ug/L	73900	20000	20000	87500	91700	68	89	70-130	5	20	M1
Manganese	ug/L	424	2000	2000	2360	2450	97	101	70-130	4	20	
Potassium	ug/L	4760	20000	20000	24700	26000	100	106	70-130	5	20	
Sodium	ug/L	49100	20000	20000	66800	69200	88	101	70-130	4	20	

MATRIX SPIKE SAMPLE: 3236751

Parameter	Units	60413070001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	145	1000	1010	86	70-130	
Calcium	ug/L	59300	10000	23400	-359	70-130	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

MATRIX SPIKE SAMPLE: 3236751

Parameter	Units	60413070001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	640	10000	11300	106	70-130	
Magnesium	ug/L	21900	10000	12400	-96	70-130	M1
Manganese	ug/L	71.7	1000	1090	102	70-130	
Potassium	ug/L	8150	10000	57800	497	70-130	M1
Sodium	ug/L	139000	10000	153000	133	70-130	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 815417
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477004, 60413477005, 60413477006, 60413477007, 60413477008

METHOD BLANK: 3242907 Matrix: Water
Associated Lab Samples: 60413477004, 60413477005, 60413477006, 60413477007, 60413477008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<4.2	100	4.2	11/10/22 12:46	
Calcium	ug/L	<33.7	200	33.7	11/10/22 12:46	
Iron	ug/L	<5.6	50.0	5.6	11/10/22 12:46	
Magnesium	ug/L	<27.1	50.0	27.1	11/10/22 12:46	
Manganese	ug/L	<0.24	5.0	0.24	11/10/22 12:46	
Potassium	ug/L	<87.6	500	87.6	11/10/22 12:46	
Sodium	ug/L	<73.2	500	73.2	11/10/22 12:46	

LABORATORY CONTROL SAMPLE: 3242908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	967	97	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10100	101	85-115	
Magnesium	ug/L	10000	10400	104	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242909 3242910

Parameter	Units	60413477002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	7150	1000	1000	8000	8170	85	102	70-130	2	20	
Calcium	ug/L	73500	10000	10000	82500	83700	90	101	70-130	1	20	
Iron	ug/L	2640	10000	10000	12700	12700	100	100	70-130	0	20	
Magnesium	ug/L	15600	10000	10000	25500	25600	99	100	70-130	0	20	
Manganese	ug/L	340	1000	1000	1340	1350	100	101	70-130	1	20	
Potassium	ug/L	6740	10000	10000	16800	17000	101	103	70-130	1	20	
Sodium	ug/L	22600	10000	10000	32200	32200	97	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 3242911

Parameter	Units	60413477013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	65.7J	1000	1030	96	70-130	
Calcium	ug/L	124000	10000	128000	41	70-130	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

MATRIX SPIKE SAMPLE: 3242911

Parameter	Units	60413477013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	7820	10000	17400	96	70-130	
Magnesium	ug/L	31500	10000	40000	85	70-130	
Manganese	ug/L	523	1000	1500	97	70-130	
Potassium	ug/L	3910	10000	13900	100	70-130	
Sodium	ug/L	5600	10000	15800	102	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 815419
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477024, 60413477025

METHOD BLANK: 3242917 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<4.2	100	4.2	11/10/22 13:35	
Calcium	ug/L	<33.7	200	33.7	11/10/22 13:35	
Iron	ug/L	<5.6	50.0	5.6	11/10/22 13:35	
Magnesium	ug/L	<27.1	50.0	27.1	11/10/22 13:35	
Manganese	ug/L	<0.24	5.0	0.24	11/10/22 13:35	
Potassium	ug/L	<87.6	500	87.6	11/10/22 13:35	
Sodium	ug/L	<73.2	500	73.2	11/10/22 13:35	

LABORATORY CONTROL SAMPLE: 3242918

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	955	95	85-115	
Calcium	ug/L	10000	10300	103	85-115	
Iron	ug/L	10000	9920	99	85-115	
Magnesium	ug/L	10000	10000	100	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9960	100	85-115	
Sodium	ug/L	10000	9970	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242919 3242920

Parameter	Units	60413477016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	76.5J	1000	1000	1040	1030	97	95	70-130	1	20	
Calcium	ug/L	273000	10000	10000	288000	285000	151	127	70-130	1	20	M1
Iron	ug/L	16000	10000	10000	26200	26000	102	100	70-130	1	20	
Magnesium	ug/L	72700	10000	10000	84300	83800	116	111	70-130	1	20	
Manganese	ug/L	1280	1000	1000	2280	2260	100	98	70-130	1	20	
Potassium	ug/L	6000	10000	10000	16500	16200	105	102	70-130	2	20	
Sodium	ug/L	25300	10000	10000	35600	35200	104	99	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 815804
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413480008

METHOD BLANK: 3244375 Matrix: Water
Associated Lab Samples: 60413480008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	11.1J	100	4.2	11/10/22 14:11	
Calcium	ug/L	<33.7	200	33.7	11/10/22 14:11	
Iron	ug/L	<5.6	50.0	5.6	11/10/22 14:11	
Magnesium	ug/L	<27.1	50.0	27.1	11/10/22 14:11	
Manganese	ug/L	<0.24	5.0	0.24	11/10/22 14:11	
Potassium	ug/L	<87.6	500	87.6	11/10/22 14:11	
Sodium	ug/L	<73.2	500	73.2	11/10/22 14:11	

LABORATORY CONTROL SAMPLE: 3244376

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	967	97	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	9950	99	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9980	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3244377 3244378

Parameter	Units	60413638002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	184	1000	1000	1150	1140	97	95	70-130	1	20	
Calcium	ug/L	122000	10000	10000	122000	121000	-7	-12	70-130	0	20	M1
Iron	ug/L	19.9J	10000	10000	10100	9930	100	99	70-130	1	20	
Magnesium	ug/L	25300	10000	10000	33300	33000	80	77	70-130	1	20	
Manganese	ug/L	150	1000	1000	1150	1140	100	99	70-130	1	20	
Potassium	ug/L	5290	10000	10000	15300	15100	100	98	70-130	2	20	
Sodium	ug/L	62200	10000	10000	67500	68600	53	64	70-130	2	20	M1

MATRIX SPIKE SAMPLE: 3244379

Parameter	Units	60413641001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	72.7J	1000	1040	96	70-130	
Calcium	ug/L	95000	10000	103000	77	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

MATRIX SPIKE SAMPLE: 3244379

Parameter	Units	60413641001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	12.0J	10000	10000	100	70-130	
Magnesium	ug/L	16600	10000	26300	98	70-130	
Manganese	ug/L	395	1000	1380	99	70-130	
Potassium	ug/L	4400	10000	14400	100	70-130	
Sodium	ug/L	2820	10000	13100	102	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 814616
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477004, 60413477005, 60413477008, 60413480001, 60413480002, 60413480004, 60413480005, 60413480006, 60413480007

METHOD BLANK: 3239748 Matrix: Water
Associated Lab Samples: 60413477004, 60413477005, 60413477008, 60413480001, 60413480002, 60413480004, 60413480005, 60413480006, 60413480007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	10/26/22 14:59	

LABORATORY CONTROL SAMPLE: 3239749

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

SAMPLE DUPLICATE: 3239750

Parameter	Units	60413477001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	241	234	3	10	

SAMPLE DUPLICATE: 3239751

Parameter	Units	60413480006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	393	398	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 815002
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477006, 60413477007, 60413480003, 60413480008

METHOD BLANK: 3241292 Matrix: Water
Associated Lab Samples: 60413477006, 60413477007, 60413480003, 60413480008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	10/27/22 14:32	

LABORATORY CONTROL SAMPLE: 3241293

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

SAMPLE DUPLICATE: 3241294

Parameter	Units	60413477006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	372	371	0	10	

SAMPLE DUPLICATE: 3241295

Parameter	Units	60413480003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	610	613	0	10	

SAMPLE DUPLICATE: 3241296

Parameter	Units	60413797001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	4.7J		10	

SAMPLE DUPLICATE: 3241297

Parameter	Units	60413477016 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	462	476	3	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 815255
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477024, 60413477025

METHOD BLANK: 3242335 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	10/28/22 13:56	

LABORATORY CONTROL SAMPLE: 3242336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	489	98	90-110	

SAMPLE DUPLICATE: 3242337

Parameter	Units	60414043001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	501	507	1	10	

SAMPLE DUPLICATE: 3242338

Parameter	Units	60413641002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	365	371	1	10	

SAMPLE DUPLICATE: 3242339

Parameter	Units	60413642002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	453	454	0	10	

SAMPLE DUPLICATE: 3242340

Parameter	Units	60413642005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	<4.6		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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 814499
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477004, 60413477005, 60413477008, 60413480001, 60413480002, 60413480004, 60413480005, 60413480006, 60413480007

METHOD BLANK: 3239207 Matrix: Water
Associated Lab Samples: 60413477004, 60413477005, 60413477008, 60413480001, 60413480002, 60413480004, 60413480005, 60413480006, 60413480007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/25/22 10:47	

LABORATORY CONTROL SAMPLE: 3239208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	884	88	80-120	

SAMPLE DUPLICATE: 3239209

Parameter	Units	60413307001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2630	2720	3	10	

SAMPLE DUPLICATE: 3239210

Parameter	Units	60413477004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	467	467	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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 814748
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477006, 60413477007, 60413480003

METHOD BLANK: 3240236 Matrix: Water
Associated Lab Samples: 60413477006, 60413477007, 60413480003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/26/22 16:18	

LABORATORY CONTROL SAMPLE: 3240237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	977	98	80-120	

SAMPLE DUPLICATE: 3240238

Parameter	Units	60413473006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	352	352	0	10	

SAMPLE DUPLICATE: 3240239

Parameter	Units	60413480003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1160	1170	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 814996
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477024, 60413477025, 60413480008

METHOD BLANK: 3241273 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025, 60413480008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/27/22 16:14	

LABORATORY CONTROL SAMPLE: 3241274

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	985	98	80-120	

SAMPLE DUPLICATE: 3241275

Parameter	Units	60413477016 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1330	1310	2	10	

SAMPLE DUPLICATE: 3241276

Parameter	Units	60413641002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	<10.0	503		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

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 816402
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477004, 60413477005, 60413477006, 60413477007, 60413477008, 60413480001, 60413480002, 60413480003, 60413480005, 60413480006, 60413480007

METHOD BLANK: 3246987 Matrix: Water
Associated Lab Samples: 60413477004, 60413477005, 60413477006, 60413477007, 60413477008, 60413480001, 60413480002, 60413480003, 60413480005, 60413480006, 60413480007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/04/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/04/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/04/22 08:54	

METHOD BLANK: 3250187 Matrix: Water
Associated Lab Samples: 60413477004, 60413477005, 60413477006, 60413477007, 60413477008, 60413480001, 60413480002, 60413480003, 60413480005, 60413480006, 60413480007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.61J	1.0	0.53	11/07/22 15:06	
Fluoride	mg/L	<0.12	0.20	0.12	11/07/22 15:06	
Sulfate	mg/L	<0.55	1.0	0.55	11/07/22 15:06	

LABORATORY CONTROL SAMPLE: 3246988

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

LABORATORY CONTROL SAMPLE: 3250188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3246989 3246990

Parameter	Units	60413480003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	86.4	100	100	177	168	91	81	80-120	6	15	
Fluoride	mg/L	0.41	2.5	2.5	3.0	2.9	102	100	80-120	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3246989 3246990

Parameter	Units	60413480003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	285	100	100	436	386	151	100	80-120	12	15	E,M1

SAMPLE DUPLICATE: 3246991

Parameter	Units	60413480003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	86.4	85.8	1	15	
Fluoride	mg/L	0.41	0.48	15	15	
Sulfate	mg/L	285	279	2	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 816675
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413480008

METHOD BLANK: 3248342 Matrix: Water
Associated Lab Samples: 60413480008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/07/22 05:43	
Fluoride	mg/L	<0.12	0.20	0.12	11/07/22 05:43	
Sulfate	mg/L	<0.55	1.0	0.55	11/07/22 05:43	

METHOD BLANK: 3250952 Matrix: Water
Associated Lab Samples: 60413480008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/08/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/08/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/08/22 08:54	

LABORATORY CONTROL SAMPLE: 3248343

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	4.8	95	90-110	

LABORATORY CONTROL SAMPLE: 3250953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3248344 3248345

Parameter	Units	60414609001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	61.8	250	250	283	284	89	89	80-120	0	15	
Fluoride	mg/L	ND	125	125	130	133	104	106	80-120	2	15	
Sulfate	mg/L	246	250	250	609	460	145	85	80-120	28	15	M1,R1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

SAMPLE DUPLICATE: 3248346

Parameter	Units	60414609001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	61.8	63.0	2	15	
Fluoride	mg/L	ND	<6.2		15	
Sulfate	mg/L	246	227	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 816677
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413477024, 60413477025

METHOD BLANK: 3248352 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/08/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/08/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/08/22 08:54	

METHOD BLANK: 3251718 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/09/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/09/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/09/22 08:54	

METHOD BLANK: 3252693 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/10/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/10/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/10/22 08:54	

METHOD BLANK: 3252716 Matrix: Water
Associated Lab Samples: 60413477024, 60413477025

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/10/22 08:50	
Fluoride	mg/L	<0.12	0.20	0.12	11/10/22 08:50	
Sulfate	mg/L	<0.55	1.0	0.55	11/10/22 08:50	

LABORATORY CONTROL SAMPLE: 3248353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

LABORATORY CONTROL SAMPLE: 3248353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 3251719

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.7	107	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 3252694

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

LABORATORY CONTROL SAMPLE: 3252717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3248355 3248356

Parameter	Units	60413477016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	80.3	50	50	155	138	150	115	80-120	12	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	2.7	2.6	110	105	80-120	4	15	
Sulfate	mg/L	501	250	250	732	738	92	95	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3248357 3248358

Parameter	Units	60413642002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.8	5	5	6.9	6.9	102	101	80-120	1	15	
Fluoride	mg/L	0.22	2.5	2.5	2.8	2.8	103	103	80-120	0	15	
Sulfate	mg/L	36.8	25	25	85.6	79.0	195	169	80-120	8	15	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

SAMPLE DUPLICATE: 3248354

Parameter	Units	60413477016 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	80.3	82.4	3	15	
Fluoride	mg/L	<0.12	0.20J		15	
Sulfate	mg/L	501	467	7	15	

SAMPLE DUPLICATE: 3248359

Parameter	Units	60413642002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	1.8	1.8	1	15	
Fluoride	mg/L	0.22	0.21	3	15	
Sulfate	mg/L	36.8	36.3	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

QC Batch: 817040
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60413480004

METHOD BLANK: 3249543 Matrix: Water
Associated Lab Samples: 60413480004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.57J	1.0	0.53	11/07/22 23:03	
Fluoride	mg/L	<0.12	0.20	0.12	11/07/22 23:03	
Sulfate	mg/L	<0.55	1.0	0.55	11/07/22 23:03	

METHOD BLANK: 3250427 Matrix: Water
Associated Lab Samples: 60413480004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/03/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	11/03/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	11/03/22 08:54	

LABORATORY CONTROL SAMPLE: 3249544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 3250428

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.6	102	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60413477004	S-BMW-3S	EPA 200.7	815417	EPA 200.7	815453
60413477005	S-BMW-1S	EPA 200.7	815417	EPA 200.7	815453
60413477006	S-LMW-2S	EPA 200.7	815417	EPA 200.7	815453
60413477007	S-LMW-1S	EPA 200.7	815417	EPA 200.7	815453
60413477008	S-LMW-5S	EPA 200.7	815417	EPA 200.7	815453
60413480001	S-LMW-FB-1	EPA 200.7	813930	EPA 200.7	814034
60413480002	S-LMW-FB-2	EPA 200.7	813930	EPA 200.7	814034
60413480003	S-LMW-9S	EPA 200.7	813930	EPA 200.7	814034
60413480004	S-LMW-DUP-2	EPA 200.7	813930	EPA 200.7	814034
60413480005	S-LMW-7S	EPA 200.7	813930	EPA 200.7	814034
60413480006	S-LMW-8S	EPA 200.7	813930	EPA 200.7	814034
60413480007	S-LMW-DUP-1	EPA 200.7	813930	EPA 200.7	814034
60413480008	S-LMW-3S	EPA 200.7	815804	EPA 200.7	815888
60413477024	S-LMW-6S	EPA 200.7	815419	EPA 200.7	815455
60413477025	S-LMW-4S	EPA 200.7	815419	EPA 200.7	815455
60413477004	S-BMW-3S	SM 2320B	814616		
60413477005	S-BMW-1S	SM 2320B	814616		
60413477006	S-LMW-2S	SM 2320B	815002		
60413477007	S-LMW-1S	SM 2320B	815002		
60413477008	S-LMW-5S	SM 2320B	814616		
60413480001	S-LMW-FB-1	SM 2320B	814616		
60413480002	S-LMW-FB-2	SM 2320B	814616		
60413480003	S-LMW-9S	SM 2320B	815002		
60413480004	S-LMW-DUP-2	SM 2320B	814616		
60413480005	S-LMW-7S	SM 2320B	814616		
60413480006	S-LMW-8S	SM 2320B	814616		
60413480007	S-LMW-DUP-1	SM 2320B	814616		
60413480008	S-LMW-3S	SM 2320B	815002		
60413477024	S-LMW-6S	SM 2320B	815255		
60413477025	S-LMW-4S	SM 2320B	815255		
60413477004	S-BMW-3S	SM 2540C	814499		
60413477005	S-BMW-1S	SM 2540C	814499		
60413477006	S-LMW-2S	SM 2540C	814748		
60413477007	S-LMW-1S	SM 2540C	814748		
60413477008	S-LMW-5S	SM 2540C	814499		
60413480001	S-LMW-FB-1	SM 2540C	814499		
60413480002	S-LMW-FB-2	SM 2540C	814499		
60413480003	S-LMW-9S	SM 2540C	814748		
60413480004	S-LMW-DUP-2	SM 2540C	814499		
60413480005	S-LMW-7S	SM 2540C	814499		
60413480006	S-LMW-8S	SM 2540C	814499		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPB
Pace Project No.: 60413480

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60413480007	**S-LMW-DUP-1**	SM 2540C	814499		
60413480008	**S-LMW-3S**	SM 2540C	814996		
60413477024	**S-LMW-6S**	SM 2540C	814996		
60413477025	**S-LMW-4S**	SM 2540C	814996		
60413477004	**S-BMW-3S**	EPA 300.0	816402		
60413477005	**S-BMW-1S**	EPA 300.0	816402		
60413477006	**S-LMW-2S**	EPA 300.0	816402		
60413477007	**S-LMW-1S**	EPA 300.0	816402		
60413477008	**S-LMW-5S**	EPA 300.0	816402		
60413480001	**S-LMW-FB-1**	EPA 300.0	816402		
60413480002	**S-LMW-FB-2**	EPA 300.0	816402		
60413480003	**S-LMW-9S**	EPA 300.0	816402		
60413480004	**S-LMW-DUP-2**	EPA 300.0	817040		
60413480005	**S-LMW-7S**	EPA 300.0	816402		
60413480006	**S-LMW-8S**	EPA 300.0	816402		
60413480007	**S-LMW-DUP-1**	EPA 300.0	816402		
60413480008	**S-LMW-3S**	EPA 300.0	816675		
60413477024	**S-LMW-6S**	EPA 300.0	816677		
60413477025	**S-LMW-4S**	EPA 300.0	816677		

WO#: 60413480

60413480

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

Client Name: WSP Golder

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

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

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

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

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

Cooler Temperature (°C): **As-read** 2.1/1.9 **Corr. Factor** 0.0 **Corrected** 2.1/1.9/9.7

Temperature should be above freezing to 6°C 9.7

Date and initials of person examining contents: PW 10/20/22

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 55192	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 2

Section A Required Client Information:

Company:	WSP Golder
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604. 0003

Section C Invoice Information:

Attention:	
Company Name:	WSP Golder
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: App III and Cat/An Metals (N)	Chloride/Fluoride/Sulfate (N)	TDS (N)	Alkalinity (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-1S	WT	G			10-19-22	1140		4			3							✓	✓	✓	✓		604/348
2	S-LMW-2S	WT	G			10-19-22	1336		4	1		3							✓	✓	✓	✓		
3	S-LMW-3S	WT	G																						
4	S-LMW-4S	WT	G																						
5	S-LMW-5S	WT	G			10-18-22	1455		4	1		3							✓	✓		✓		
6	S-LMW-6S	WT	G																						
7	~~S-LMW-7S~~ S-LMW-FB-1	WT	G			10-18	1103		2	1		1							✓	✓	✓	✓		BPW
8	~~S-LMW-8S~~ S-LMW-FB-2	WT	G			10-18-22	1250		2	1		1							✓	✓	✓	✓		BPW
9	S-LMW-9S	WT	G			10-19-22	1007		2	1		1							✓	✓	✓	✓	3 BPW 3 BPW	10/20
10	S-BMW-1S	WT	G			10-18-22	1535		2	1		1							✓	✓	✓	✓		
11	S-BMW-3S	WT	G			10-18-22	1406		2	1		1							✓	✓	✓	✓		
12	~~S-LMW-DUP-1S~~ LMW-DUP-2	WT	G			10-18-22	[illegible]		2	1		1							✓	✓	✓	✓		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	Shawn Christensen	10/19/22	1531	[signature]	10/20	0413	2-3 X X X
							2-1 X X X

SAMPLER NAME AND SIGNATURE:
PRINT Name of SAMPLER: Grant Morey
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/19/22

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

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

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	WSP Golder
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey.ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604. 0003

Section C Invoice Information:

Attention:	
Company Name:	WSP Golder
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-1S	WT	G															N						
2	S-LMW-2S	WT	G															N						
3	S-LMW-3S	WT	G															N						
4	S-LMW-4S	WT	G															N						
5	S-LMW-5S	WT	G															N						
6	S-LMW-6S	WT	G	GTM														N						
7	S-LMW-7S	WT	G	~~10-18~~	~~1~~	10-18	1048		2	1		1						N	✓	✓	✓	✓		BP3N BP1U
8	S-LMW-8S	WT	G			10-18-22	1210		2	1		1						N	✓	✓	✓	✓		+ +
9	~~S-LMW-9S~~ S-LMW-MS-1	WT	G			10-19-22	1007		2	1		1						N	✓	✓	✓	✓		Collected@S-LMW-9S
10	~~S-BMW-1S~~ S-LMW-MSD-1	WT	G			10-19-22	1007		2	1		1						N	✓	✓	✓	✓		Collected @ S-LMW-9S
11	~~S-BMW-3S~~	WT	G															N						
12	S-LMW-DUP-1	WT	G			10-18	—		2	1		1						N	✓	✓	✓	✓		BP3N BP1U

60413480 Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	Shawn Abrahamson	10/19/22	1532		10/20	0413	2-3	X	Y	Y
							2-1	X	X	X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 10/19/22

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

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

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Sample Co	WO# : 60413480
	Revision: 2	Effective Date: 01/12/2022

60413480

Client Name: WSP Golder

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

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

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

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

Thermometer Used: T-299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 1.9/0.4/14.9/14.8/0.7/1 Corr. Factor 0 Corrected 1.9/0.4/14.9/14.8/0.3/0.6

Date and initials of person examining contents: BC 10/22

Temperature should be above freezing to 6°C 0.6

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☒No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☒No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 610600	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☒No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☒No ☐N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☒No ☐N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — Required Client Information:

Company:	Golder Associates
Address:	701 Emerson Road, Suite 250
	Creve Coeur, Missouri, 63141
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140604, 0003

Section C — Invoice Information:

Attention:	
Company Name:	Golder Associates USA, Inc.
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	App III and Cat/An Metals	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N		60413480
1	S-LMW-1S	WT	G																					
2	S-LMW-2S	WT	G																					
3	S-LMW-3S	WT	G			10-20-22	1219		3	1		1							✓	✓	✓			
4	S-LMW-4S	WT	G				1331		2	1		1							✓	✓	✓			
5	S-LMW-5S	WT	G				1514																	
6	S-LMW-6S	WT	G			10-20-22	1519		2	1		1							✓	✓	✓			
7	S-LMW-7S	WT	G																					
8	S-LMW-8S	WT	G																					
9	S-LMW-9S	WT	G																					
10	S-BMW-1S	WT	G																					
11	S-BMW-3S	WT	G																					
12	S-LMW-DUP-1	WT	G																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: B, Ca, Fe, Mn, Mg, K, Na	Grant Morey/Golder	10-21-22	1500	[illegible]	10/21/22	1748	0.6	Y	Y	
							1.2			
							0.0			
							14.0			
							0.1			
							14.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10-20-22

Client: WSP Golder

Profile # 9285

Site: COC # 9 SCPB

Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																		1				1									
2	WT																		1				1									
3																																
4	WT																		1				1									
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

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

Work Order Number: 60413480

MEMORANDUM

DATE December 15, 2022 **Project No.** 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Rahel Pommerenke **EMAIL rahel.pommerenke@wsp.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – DETECTION MONITORING – DATA PACKAGE - 60413480

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder / WSP
Project Manager: J. Ingram
Project Name: Ameren SEC - SCPB
Project Number: 153140604
Reviewer: R.Pommerenke
Validation Date: 12/15/2022

Laboratory: Pace Analytical Services
SDG #: 60413480
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names S-LMW-FB-1, S-LMW-FB-2, S-LMW-9S, S-LMW-DUP-2, S-LMW-7S, S-LMW-8S, S-LMW-DUP-1, S-LMW-3S, S-LMW-1S, S-LMW-2S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			10/18/2022 - 10/20/2022
b) Sampling team indicated?	x			GTM/PCS/SMA
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See notes.
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

Dilutions:

Chloride and sulfate analyzed at a dilution: no qualification necessary.

Blanks:

MB3236747: Iron (8.8J), Manganese (0.54J), and Sodium (74.0J). Associated with samples -80001 through -80007.

Result < 10x blank result but > RL: qualified as estimate. Result > 10 x blank result and > RL or ND: no qualification necessary.

Results < RL reported as non-detect at the reporting limit.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB3244375: Boron (11.1J). Associated with sample -8008. Result > 10x blank result and > RL: no qualification necessary.

MB3250187: Chloride (0.61J). Associated with samples 77004 through -005 and 77008, 80001 through -003, 80005 through -007. Results > 10x blank and > RL or ND: no qualification necessary. Results < RL reported as ND at RL.

MB3249543: Chloride (0.57J). Associated with sample 60413480004. Results > 10x blank and > RL: no qualification necessary

S-LMW-FB-1 @ L-LMW-7S: Iron (10.8J), Sodium (167J), Alkalinity (6.1J), Chloride (0.53J). Results > 10x blank and > RL: no qualification necessary. Results < RL reported as ND at RL.

S-LMW-FB-2 @ L-LMW-8S: Iron (6.4J), Total Dissolved Solids (7.0). Results > 10x blank and > RL: no qualification necessary. Results < RL reported as ND at RL.

Duplicates:

S-LMW-DUP-2 @ S-LMW-8S: RPD exceeds limit (20%) for iron (23%). Fluoride detected in parent sample and ND in duplicate.

S-LMW-DUP-1 @ S-LMW-7S: RPD exceeds limit (20%) for Chloride (119%) and Sulfate (25%).

Sample Duplicate 3241296: Alkalinity detected in duplicate but not in parent sample. Performed on unrelated sample: no qualification necessary.

Sample Duplicate 3241276: Total Dissolved Solids detected in duplicate but not in parent sample. Performed on unrelated sample: no qualification necessary.

Sample Duplicate 3248354: Fluoride detected in duplicate sample but not in parent sample. Performed on unrelated sample: no qualification necessary.

MS/MSD:

3236749/3236750: MS % recovery low for Calcium and Magnesium. Associated with S-LMW-9S. Only one QC indicator out of control limits: no qualification necessary.

3236751: MS % recovery low for Calcium and Magnesium. MS % recovery high for Potassium and Sodium. Performed on unrelated sample: no qualification necessary.

3242911: MS % recovery low for Calcium. Performed on unrelated sample: no qualification necessary.

3242919/3242920: MS % recovery high for Calcium. Performed on unrelated sample: no qualification necessary.

3244377/3244378: MS/MS % recovery low for Calcium and Sodium. Performed on unrelated sample: no qualification necessary.

3246989/3246990: MS % recovery high for Sulfate. Only QC indicator out of control limits: no qualification necessary.

3248344/3248345: MS % recovery high for Sulfate. RPD limit (15%) exceeded for Sulfate (28%). Performed on unrelated sample: no qualification necessary.

3248355/3248356: MS % recovery high for Chloride. Performed on unrelated sample: no qualification necessary.

3248357/3248358: MS/MSD % recovery high for Sulfate. Performed on unrelated sample: no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-FB-1	Iron	50.0	U	Detected in MB, Result < RL
"	Sodium	500	U	"
"	Chloride	1.0	U	"
S-LMW-FB-2	Iron	50.0	U	Detected in MB, Result < RL
S-LMW-9S	Iron	63.3	J	Detected in MB, 10x blank > Result > RL
S-LMW-DUP-2	Iron	50.0	UJ	Detected in MB, Result < RL; Dup RPD exceeds limits
"	Fluoride	0.20	UJ	Detected in parent sample, ND in dup
S-LMW-8S	Iron	50.0	UJ	Detected in MB/FB, Result < RL; Dup RPD exceeds limits
"	Fluoride	0.19	J	Detected in parent sample, ND in dup
S-LMW-DUP-1	Iron	50.0	U	Detected in MB, Result < RL
"	Chloride	15.9	J	DUP RPD exceeds limit
"	Sulfate	417	J	"
S-LMW-7S	Iron	50.0	U	Detected in FB/MB, Result < RL
"	Chloride	62.9	J	DUP RPD exceeds limit
"	Sulfate	323	J	"

Signature: _____  _____ Date: 12/15/2022

APPENDIX B

Alternative Source Demonstration - November 2021 Sampling Event

TECHNICAL MEMORANDUM

DATE June 24, 2022 **Project No.** 153140604

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

CC

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G., Sean Paulsen **EMAIL Jeffrey.Ingram@WSP.com**

SCPB – ALTERNATIVE SOURCE DEMONSTRATION – NOVEMBER 2021 SAMPLING EVENT

1.0 INTRODUCTION

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

2.0 BACKGROUND

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

- **Geochemical Signatures** – As reflected on the piper diagrams of the November 2017 ASD, SCPA pore-water has a distinctly different signature than the pore-water from the SCPB. CCR groundwater samples in monitoring wells with SSIs plot on the piper diagrams in a location between the SCPA pore-water zone and the background groundwater zone, indicating that well water chemistry is a mixture of unaffected groundwater and groundwater impacted by the SCPA. None of the downgradient monitoring wells reflect a geochemical signature in the SCPB pore-water zone, or in the area that is strictly the SCPB mixing zone.
- **USEPA FALCON Analysis** – The USEPA FALCON method compared constituent fingerprints of the downgradient monitoring wells with those of the background groundwater, SCPB pore-water, and SCPA pore-water. The results indicate that there is strong correlation between downgradient monitoring wells,

SCPA pore-water, and background groundwater, as compared with SCPB pore-water. These same correlations were found at depth within the alluvial aquifer in the temporary ASD piezometers.

- **Groundwater Flow Directions** – Potentiometric surface mapping demonstrates that groundwater flow directions onsite are variable and can temporarily flow in multiple directions, but generally groundwater flow exhibits an east-northeast flow direction, depending on the river level in the adjacent Mississippi and Missouri Rivers. This supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells relative to both the SCPA and SCPB, because impacted monitoring wells around the SCPB are generally located downgradient from the SCPA.
- **SCPB Construction** – The SCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 419 feet above mean sea level (FT MSL). This, along with the presence of key CCR indicators in the shallow, intermediate (middle), and deep zones of the alluvial aquifer, indicate that impacts present onsite are from the SCPA and not the shallow, lined SCPB.

A copy of the ASD report for the November 2017 sampling event is provided in Appendix B of the 2018 SCPB Annual Groundwater Monitoring and Corrective Action Report.

3.0 NOVEMBER 2021 SAMPLING EVENT

A summary of the November 2021 sampling results is provided in **Table 1**. As discussed in **Section 2.0**, there are several LOEs presented in the November 2017 ASD that demonstrate that impacts around the SCPB are caused by the SCPA and not the SCPB. Both CCR units are now capped and closed with a geomembrane cover system and the same LOEs are still present at the site. The following summarizes the LOEs that indicate exceedances in the November 2021 sampling event around the SCPB are from the SCPA and not the SCPB using current monitoring data through the November 2021 sampling event.

- **Geochemical Signatures** – **Figure 1** of this Technical Memorandum is a Piper Diagram which displays a comparison of November 2021 SCPB CCR Rule groundwater monitoring well data to cation and anion data for the SCPA pore-water, SCPB pore-water, and background groundwater zones. As shown in **Figure 1**, and as expected, since the SSIs were a result of the SCPA, the November 2021 SCPB monitoring results would be expected to plot in and between the background groundwater quality (yellow section) and the SCPA pore-water (green hexagon) on the piper diagram. As described in the ASD for the November 2017 Sampling Event, results displayed in **Figure 1** continue to demonstrate that groundwater quality in the monitoring wells around the SCPB are impacted by the SCPA and not the SCPB.

- **USEPA FALCON ANALYSIS** – The USEPA FALCON method compared constituent fingerprints from the downgradient monitoring wells with those of background groundwater, SCPB pore-water, and SCPA pore-water. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A.** An updated calculation using data from the November 2021 sampling event was completed and a summary of the results is provided in **Table 5** of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both the SCPA pore-water and background groundwater, while there is low correlation between downgradient monitoring well data and SCPB pore-water.

- **Groundwater Flow Directions** – Potentiometric surface mapping from 2018 to 2021 continue to show that while groundwater conditions are variable due to the site's location between the Mississippi and

Missouri rivers, net groundwater flow is toward the east, which supports the conclusion that the unlined SCPA is the source of impacts at the SCPB downgradient monitoring wells because the impacted monitoring wells around the SCPB are generally located downgradient of the SCPA.

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

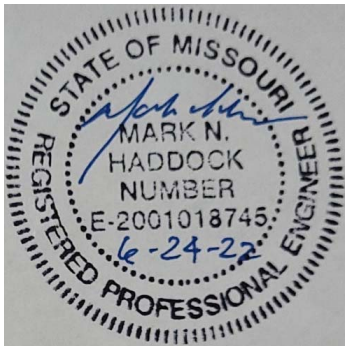
In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence all demonstrate that SSIs reported for the November 2021 Sampling Event for the SCPB CCR Unit were not caused by impacts from the SCPB surface impoundment. The SCPA surface impoundment, located immediately adjacent to the SCPB, is the source of the SSIs for groundwater in the SCPB monitoring well network.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – November 2021 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *SCPB – Alternative Source Demonstration – November 2021 Sampling Event* located at 8501 Missouri 94, West Alton, Missouri 63386 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

Golder Associates USA Inc.



Mark Haddock
Director, Geotechnical Practice Leader

EMS/JSI/SEP/MNH

Attachments: Table 1 – November 2021 Detection Monitoring Results
Figure 1 – SCPB Piper Diagram for November 2021
Appendix A – FALCON Analysis Calculation Package

Table 1
November 2021 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

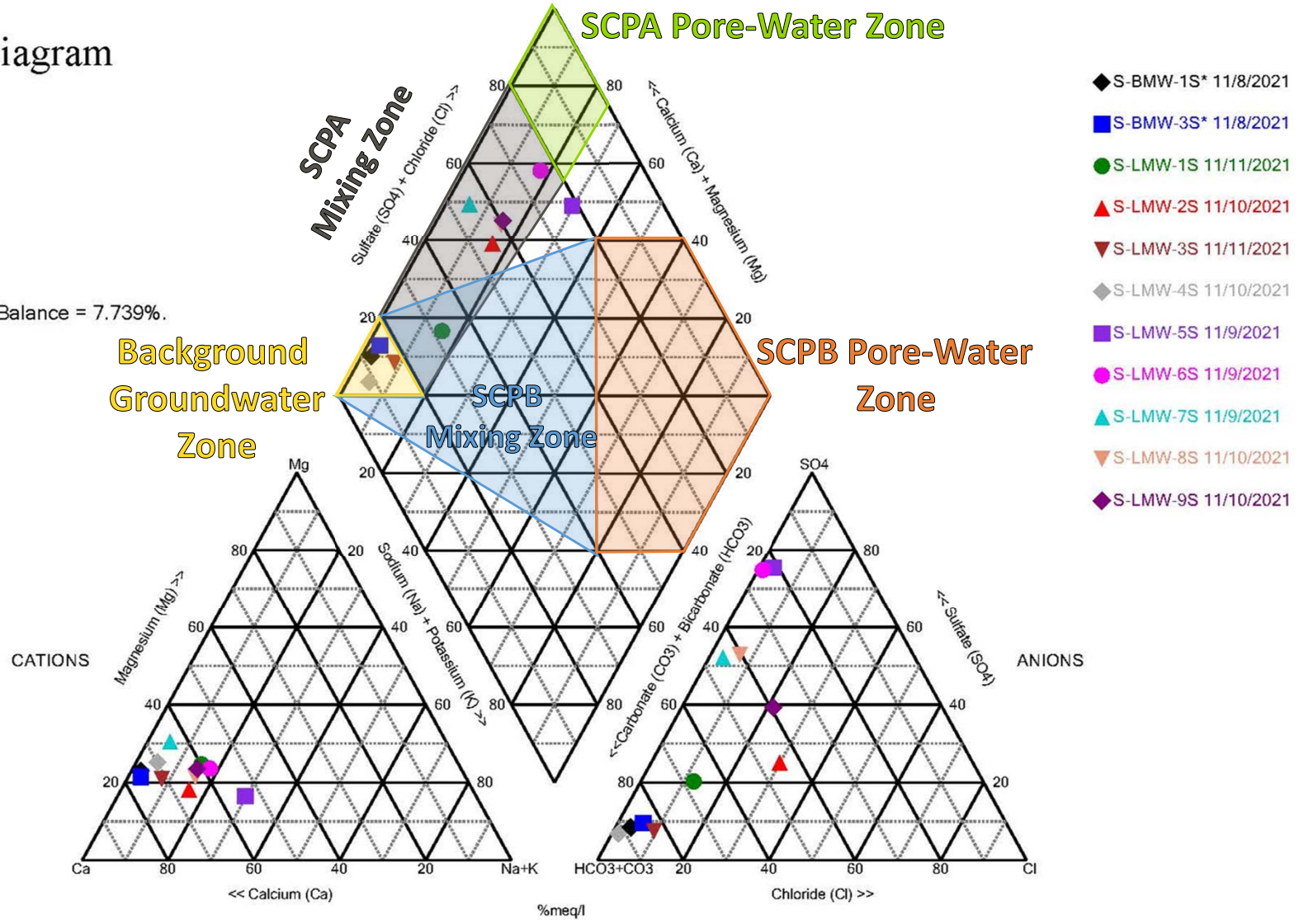
			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2021 Detection Monitoring Event													
DATE	NA	NA	11/8/2021	11/8/2021	11/11/2021	11/10/2021	11/11/2021	11/10/2021	11/9/2021	11/9/2021	11/9/2021	11/10/2021	11/10/2021
pH	SU	6.472-7.531	6.86	6.99	7.36	6.87	6.60	6.70	7.11	7.07	7.05	6.73	6.77
BORON, TOTAL	µg/L	120.5	66.9 J	67.8 J	307	8,000	219	254	12,900	22,500 J	2,900	5,200	1,330
CALCIUM, TOTAL	µg/L	166,512	160,000	137,000	70,500	236,000	155,000 J	185,000	253,000 J	291,000	246,000	177,000	193,000
CHLORIDE, TOTAL	mg/L	13.12	7.4	12.0	18.9	155	25.8	2.5 J	21.8	3.3 J	13.5	25.7	104
FLUORIDE, TOTAL	mg/L	0.416	ND	0.46	0.42	ND	0.26	0.22 J	0.55	ND	0.17 J	0.59 J	0.35
SULFATE, TOTAL	mg/L	36.69	31.8	31.2	46.0	186	29.1	31.4	835	809	397	304	273
TOTAL DISSOLVED SOLIDS	mg/L	579	534	461	320	967	753	624	1,620	1,570	1,160	841	941
February 2022 Verification Sampling Event													
DATE	NA	NA							2/7/2022			2/7/2022	
pH	SU	6.472-7.531											
BORON, TOTAL	µg/L	120.5											
CALCIUM, TOTAL	µg/L	166,512											
CHLORIDE, TOTAL	mg/L	13.12											
FLUORIDE, TOTAL	mg/L	0.416							0.46			0.48	
SULFATE, TOTAL	mg/L	36.69											
TOTAL DISSOLVED SOLIDS	mg/L	579											

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

Prepared By: EMS
Checked By: LMS
Reviewed By: MNH

Piper Diagram

Cation-Anion Balance = 7.739%.



Notes
1) Piper diagram generated using Sanitas Software.
2) Data used to calculate diagrams provided in previous Annual Reports for the SCPB.
3) %mEq/l – milliequivalents per liter

CLIENT/PROJECT **AMEREN MISSOURI** **SIOUX ENERGY CENTER**				WSP GOLDER			TITLE **SCPB PIPER DIAGRAM FOR NOVEMBER 2021**			
PREPARED EMS	CHECKED GTM	REVIEWED MNH	DATE 2022-06-10	SCALE N/A	FILE NO. N/A	PROJECT NUMBER 153140604	DWG NO. N/A	SUBTITLE N/A	REV. NO. N/A	FIGURE 1

APPENDIX A

FALCON Analysis Calculation Package

TECHNICAL MEMORANDUM

DATE June 24, 2022 **Project No.** 153140604

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

CC

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G., Sean Paulsen **EMAIL Jeffrey.Ingram@WSP.com**

APPENDIX A - SCPB FALCON ANALYSIS CALCULATION PACKAGE

1.0 OBJECTIVE

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

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method compiles ion ratios for multiple constituents in order to develop a distinctive chemical fingerprint for each possible contaminant source and un-impacted background groundwater. These signatures are then correlated to data downgradient of the sources and are used to characterize the source of the contaminant plume. For this calculation, background groundwater quality will be based on background wells located approximately 0.5 to 0.75 miles west of the SCPB. Source data is from pore-water collected from temporary piezometers within the SCPA and SCPB. Fingerprints from these three sources (background groundwater, SCPA pore-water, and SCPB pore-water) will then be compared to data from alluvial aquifer sampling locations at the SEC. Data from the SCPA and SCPB pore-water is from the November 2017 ASD for the SCPB which is available in the 2018 Annual Report for the SCPB. Data from the background and compliance monitoring wells is from the November 2021 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis is to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each water type. Constituents selected included major cation and anion constituents that represent groundwater chemistry and selected key indicators of CCR impacts. Values of the three different sources were compared to see which constituents fit the criteria. A summary table of the values used for the three sources is provided in **Table 1**. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Boron
- Total Calcium
- Total Chloride
- Total Fluoride
- Total Iron
- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized and a graphical presentation of the fingerprints where produced. These steps are provided in **Table 1** for the three different sources (background groundwater, SCPA pore-water, and SCPB pore-water) as well as each monitoring well evaluated. Correlations were then completed between the different sources to determine each source's reproducibility. Tables displaying these correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

Table 2 - Background Groundwater Correlations				
Well ID	*S-BMW-1D*	*S-BMW-1S*	*S-BMW-3D*	*S-BMW-3S*
S-BMW-1D				
S-BMW-1S	99.9%			
S-BMW-3D	99.9%	99.9%		
S-BMW-3S	99.9%	100.0%	99.9%	
Average Fingerprint Reproducibility			99.9%	

Table 3 – SCPB Pore-water Correlations

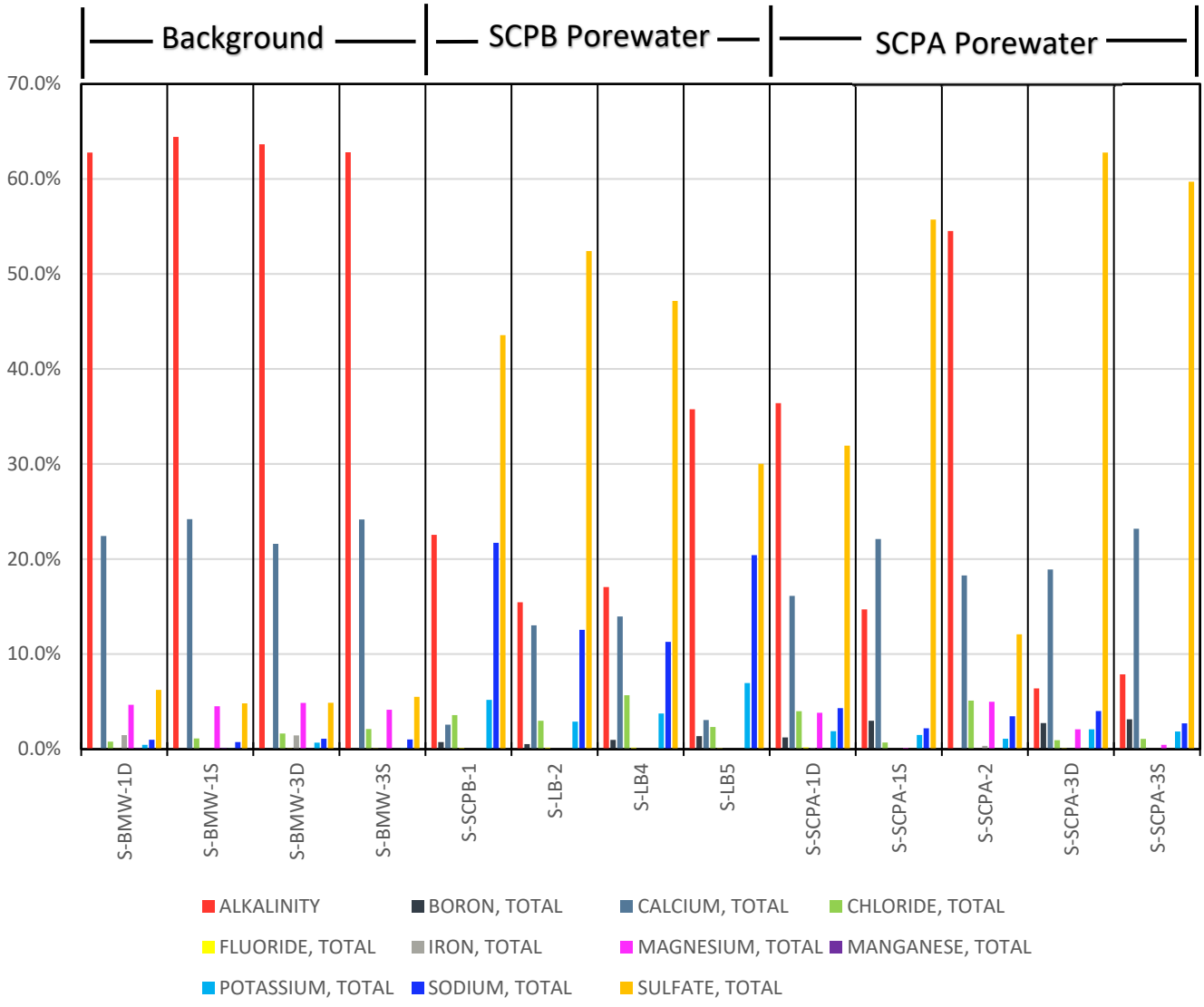
Table 3 – SCPB Pore-water Correlations				
Well ID	*S-LB-2*	*S-LB-4*	*S-LB-5*	*S-SCPB-1*
S-LB-2				
S-LB-4	99.6%			
S-LB-5	74.8%	76.9%		
S-SCPB-1	93.0%	92.8%	90.5%	
Average Fingerprint Reproducibility			87.9%	

Table 4 – SCPA Pore-water Correlations

Well ID	*S-SCPA-1D*	*S-SCPA-1S*	*S-SCPA-2*	*S-SCPA-3D*	*S-SCPA-3S*
S-SCPA-1D					
S-SCPA-1S	78.8%				
S-SCPA-2	84.8%	35.6%			
S-SCPA-3D	67.8%	98.2%	19.1%		
S-SCPA-3S	70.3%	99.1%	23.4%	78.0%	
Average Fingerprint Reproducibility				65.5%	
Average Fingerprint Reproducibility (without SCPA-2)				82.0%	

Additionally, **Figure 1** below displays a histogram of the different source water normalizations.

Figure 1 – Histogram of Source Water Normalizations at the SEC



After reviewing the correlations for the SCPA pore-water, it is evident that there are some poor correlations between the different source water sampling points. This is likely caused by the historical placement of ash in the CCR unit and pore-water flow within the SCPA. SCPA-1 and SCPA-3 locations have a strong correlation and are both located in areas where more fly ash has been managed. SCPA-2 is located in the northern portion of the pond where mostly bottom ash has been managed.

Due to this lack of correlation, the SCPA will be divided into two separate sources for comparison which include (1) an average of the southern locations (SCPA-1S, SCPA-1D, SCPA-3S, and SCPA-3D) and (2) SCPA-2. Separating the SCPA into two potential sources more accurately reflects the conditions within the SCPA, due to its spatial variation.

5.0 CORRELATING ALLUVIAL AQUIFER SAMPLES WITH SOURCES

A correlation between the average groundwater concentration and the different source waters was completed to demonstrate which source better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results demonstrate that groundwater in the alluvial aquifer either correlates with the SCPA pore-water or background groundwater, but shows a lower degree of correlation with the SCPB pore-water.

Table 5 – Summary of November 2021 USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Average	SCPB Average	SCPA Average (no SCPA-2)	SCPA-2 Average	
S-AM-1D	97%	58%	49%	99%	SCPA-2
S-AM-1S	98%	52%	41%	100%	SCPA-2
S-DG-1	100%	35%	25%	98%	Background
S-DG-2	100%	38%	29%	99%	Background
S-DG-3	100%	40%	31%	99%	Background
S-DG-4	99%	40%	28%	99%	SCPA-2
S-LMW-1S	99%	50%	40%	100%	SCPA-2
S-LMW-2S	90%	59%	54%	94%	SCPA-2
S-LMW-3S	100%	36%	27%	99%	Background
S-LMW-4S	100%	36%	26%	99%	Background
S-LMW-5S	32%	96%	98%	43%	SCPA
S-LMW-6S	38%	94%	99%	48%	SCPA
S-LMW-7S	77%	81%	82%	84%	SCPA-2
S-LMW-8S	73%	86%	86%	80%	SCPA/SCPB
S-LMW-9S	81%	78%	76%	88%	SCPA-2
S-PZ-1S	95%	63%	57%	98%	SCPA-2

S-PZ-9D	50%	89%	97%	59%	SCPA
S-TMW-1	100%	42%	35%	99%	Background
S-TMW-2	100%	43%	35%	99%	Background
S-TMW-3	100%	38%	30%	99%	Background
S-TP-2D	71%	84%	87%	78%	SCPA
S-TP-3D	98%	53%	47%	99%	SCPA-2
S-TP-4D	97%	57%	52%	99%	SCPA-2
S-TP-5D	68%	87%	89%	76%	SCPA
S-TP-6D	100%	45%	37%	100%	SCPA-2
S-TP-6S	100%	39%	31%	99%	Background
S-TP-8D	100%	43%	35%	100%	Background
S-UG-1A	99%	41%	30%	99%	SCPA-2
S-UG-2	99%	43%	30%	99%	SCPA-2
S-UG-3	99%	48%	39%	100%	SCPA-2
S-UMW-1D	99%	50%	40%	100%	SCPA-2
S-UMW-2D	27%	91%	100%	38%	SCPA
S-UMW-3D	15%	89%	99%	26%	SCPA
S-UMW-4D	24%	92%	100%	35%	SCPA
S-UMW-5D	92%	69%	61%	97%	SCPA-2
S-UMW-6D	99%	50%	42%	100%	SCPA-2

Notes

1) Values display percent correlation between each sampling point and the SCPA Average (SCPA-1 and SCPA-3), SCPA-2 Average, SCPB Average, or Background Average fingerprints.
2) The higher values are shaded darker and indicate better correlation.

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	mg/L	204	241	389	426	333	356	393
BORON, TOTAL	mg/L	7.640	9.63	0.123	0.0669	0.05	0.0678	0.0968
CALCIUM, TOTAL	mg/L	79	84.2	139	160	113	137	124
CHLORIDE, TOTAL	mg/L	28.9	26.6	4.9	7.4	8.6	12	1.8
FLUORIDE, TOTAL	mg/L	0.6	0.59	0.37	0.043	0.39	0.46	0.41
IRON, TOTAL	mg/L	3	1.84	9.14	0.0107	7.57	0.0563	0.293
MAGNESIUM, TOTAL	mg/L	17	18	28.9	29.8	25.4	23.5	29.3
MANGANESE, TOTAL	mg/L	0	0.747	0.874	0.895	0.513	0.364	0.0715
POTASSIUM, TOTAL	mg/L	7	8.22	2.74	0.47	3.53	0.533	4.19
SODIUM, TOTAL	mg/L	23	24.3	6.09	4.84	5.72	5.71	4.08
SULFATE, TOTAL	mg/L	69.5	60.6	38.6	31.8	25.5	31.2	19.1
Sum		440.8	475.7	619.7	661.3	523.3	566.9	576.3

Analyte	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	46%	51%	63%	64%	64%	63%	68%
BORON, TOTAL	1.7%	2%	0.02%	0.01%	0.0099%	0.012%	0.017%
CALCIUM, TOTAL	18%	18%	22%	24%	22%	24%	22%
CHLORIDE, TOTAL	6.6%	5.6%	0.79%	1.1%	1.6%	2.1%	0.31%
FLUORIDE, TOTAL	0.14%	0.12%	0.06%	0.0065%	0.075%	0.081%	0.071%
IRON, TOTAL	0.69%	0.39%	1.5%	0.0016%	1.4%	0.0099%	0.051%
MAGNESIUM, TOTAL	3.9%	3.8%	4.7%	4.5%	4.9%	4.1%	5.1%
MANGANESE, TOTAL	0.083%	0.16%	0.14%	0.14%	0.098%	0.064%	0.012%
POTASSIUM, TOTAL	1.6%	1.7%	0.44%	0.071%	0.67%	0.094%	0.73%
SODIUM, TOTAL	5.3%	5.1%	0.98%	0.73%	1.1%	1%	0.71%
SULFATE, TOTAL	16%	13%	6.2%	4.8%	4.9%	5.5%	3.3%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	mg/L	384	419	442	198	427	435	557
BORON, TOTAL	mg/L	0.0867	0.0877	0.0907	0.307	8	0.219	0.254
CALCIUM, TOTAL	mg/L	130	146	136	70.5	236	155	185
CHLORIDE, TOTAL	mg/L	2.7	2.7	58.3	18.9	155	25.8	2.5
FLUORIDE, TOTAL	mg/L	0.41	0.43	0.37	0.42	0.043	0.26	0.22
IRON, TOTAL	mg/L	0.0519	0.178	0.0107	0.0729	0.0783	0.0107	0.025
MAGNESIUM, TOTAL	mg/L	27.2	32.5	40.7	17.4	39.5	28	40.5
MANGANESE, TOTAL	mg/L	0.473	1.01	0.809	0.276	0.486	0.009	0.269
POTASSIUM, TOTAL	mg/L	6.11	5.76	7.9	6.08	8.36	4.5	5.15
SODIUM, TOTAL	mg/L	4.19	5.18	26.9	17.6	60.9	18	11.9
SULFATE, TOTAL	mg/L	33.1	46.8	49.9	46	186	29.1	31.4
Sum		588.3	659.6	763.0	375.6	1121.4	695.9	834.2

Analyte	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	65%	64%	58%	53%	38%	63%	67%
BORON, TOTAL	0.015%	0.013%	0.012%	0.082%	0.71%	0.031%	0.03%
CALCIUM, TOTAL	22%	22%	18%	19%	21%	22%	22%
CHLORIDE, TOTAL	0.46%	0.41%	7.6%	5%	14%	3.7%	0.3%
FLUORIDE, TOTAL	0.07%	0.065%	0.048%	0.11%	0.0038%	0.037%	0.026%
IRON, TOTAL	0.0088%	0.027%	0.0014%	0.019%	0.007%	0.0015%	0.003%
MAGNESIUM, TOTAL	4.6%	4.9%	5.3%	4.6%	3.5%	4%	4.9%
MANGANESE, TOTAL	0.08%	0.15%	0.11%	0.073%	0.043%	0.0013%	0.032%
POTASSIUM, TOTAL	1%	0.87%	1%	1.6%	0.75%	0.65%	0.62%
SODIUM, TOTAL	0.71%	0.79%	3.5%	4.7%	5.4%	2.6%	1.4%
SULFATE, TOTAL	5.6%	7.1%	6.5%	12%	17%	4.2%	3.8%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	mg/L	310	342	442	299	354	249	237
BORON, TOTAL	mg/L	12.9	22.5	2.9	5.2	1.33	6.39	3.84
CALCIUM, TOTAL	mg/L	253	291	246	177	193	108	218
CHLORIDE, TOTAL	mg/L	21.8	3.3	13.5	25.7	104	19.3	16.7
FLUORIDE, TOTAL	mg/L	0.55	0.043	0.17	0.59	0.35	0.58	0.043
IRON, TOTAL	mg/L	0.0591	0.043	0.0107	0.0107	0.0236	5.06	13.3
MAGNESIUM, TOTAL	mg/L	47.1	71.3	70.7	36.7	45.3	18.6	49.6
MANGANESE, TOTAL	mg/L	1.41	0.509	0.74	0.542	0.663	1.07	1.41
POTASSIUM, TOTAL	mg/L	5.45	4.79	4.17	4.08	4.77	4.15	5.32
SODIUM, TOTAL	mg/L	157	97.5	21.3	48.9	51.8	25	19.8
SULFATE, TOTAL	mg/L	835	809	397	304	273	105	431
Sum		1644.3	1642.0	1198.5	901.7	1028.2	542.2	996.0

Analyte	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	19%	21%	37%	33%	34%	46%	24%
BORON, TOTAL	0.78%	1.4%	0.24%	0.58%	0.13%	1.2%	0.39%
CALCIUM, TOTAL	15%	18%	21%	20%	19%	20%	22%
CHLORIDE, TOTAL	1.3%	0.2%	1.1%	2.9%	10%	3.6%	1.7%
FLUORIDE, TOTAL	0.033%	0.0026%	0.014%	0.065%	0.034%	0.11%	0.0043%
IRON, TOTAL	0.0036%	0.0026%	0.00089%	0.0012%	0.0023%	0.93%	1.3%
MAGNESIUM, TOTAL	2.9%	4.3%	5.9%	4.1%	4.4%	3.4%	5%
MANGANESE, TOTAL	0.086%	0.031%	0.062%	0.06%	0.064%	0.2%	0.14%
POTASSIUM, TOTAL	0.33%	0.29%	0.35%	0.45%	0.46%	0.77%	0.53%
SODIUM, TOTAL	9.5%	5.9%	1.8%	5.4%	5%	4.6%	2%
SULFATE, TOTAL	51%	49%	33%	34%	27%	19%	43%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	mg/L	286	309	369	449	307	267	198
BORON, TOTAL	mg/L	0.0698	0.0869	0.0965	0.0722	0.0603	0.0645	6.16
CALCIUM, TOTAL	mg/L	111	115	126	284	122	114	132
CHLORIDE, TOTAL	mg/L	1.9	1.8	2.6	74.4	9.3	10	27.3
FLUORIDE, TOTAL	mg/L	0.46	0.36	0.32	0.043	0.24	0.27	0.2
IRON, TOTAL	mg/L	0.0335	1.27	1.71	16.2	7.7	6.26	8.75
MAGNESIUM, TOTAL	mg/L	19.1	20.3	22.6	79	28.9	25.8	31
MANGANESE, TOTAL	mg/L	0.26	0.503	0.78	1.29	0.642	0.427	0.984
POTASSIUM, TOTAL	mg/L	5.49	5.07	6.36	5.87	3.86	3.35	4.48
SODIUM, TOTAL	mg/L	3.05	3.63	4.61	26.9	6.6	7.25	23.7
SULFATE, TOTAL	mg/L	41.5	46	34.6	480	89.1	94	228
Sum		468.9	503.0	568.7	1416.8	575.4	528.4	660.6

Analyte	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	61%	61%	65%	32%	53%	51%	30%
BORON, TOTAL	0.015%	0.017%	0.017%	0.0051%	0.01%	0.012%	0.93%
CALCIUM, TOTAL	24%	23%	22%	20%	21%	22%	20%
CHLORIDE, TOTAL	0.41%	0.36%	0.46%	5.3%	1.6%	1.9%	4.1%
FLUORIDE, TOTAL	0.098%	0.072%	0.056%	0.003%	0.042%	0.051%	0.03%
IRON, TOTAL	0.0071%	0.25%	0.3%	1.1%	1.3%	1.2%	1.3%
MAGNESIUM, TOTAL	4.1%	4%	4%	5.6%	5%	4.9%	4.7%
MANGANESE, TOTAL	0.055%	0.1%	0.14%	0.091%	0.11%	0.081%	0.15%
POTASSIUM, TOTAL	1.2%	1%	1.1%	0.41%	0.67%	0.63%	0.68%
SODIUM, TOTAL	0.65%	0.72%	0.81%	1.9%	1.1%	1.4%	3.6%
SULFATE, TOTAL	8.9%	9.1%	6.1%	34%	15%	18%	35%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	mg/L	343	385	300	347	333	328	184
BORON, TOTAL	mg/L	0.0623	0.118	0.072	0.121	0.0931	0.21	0.195
CALCIUM, TOTAL	mg/L	125	138	112	127	96.9	126	64.3
CHLORIDE, TOTAL	mg/L	15.8	11.2	15	50.1	33.7	24.5	18.7
FLUORIDE, TOTAL	mg/L	0.29	0.34	0.28	0.44	0.23	0.38	0.25
IRON, TOTAL	mg/L	7.86	0.135	6.11	0.0107	0.0107	0.0107	0.339
MAGNESIUM, TOTAL	mg/L	30.9	28.5	24.5	29.5	21.2	24	17.2
MANGANESE, TOTAL	mg/L	0.508	0.244	0.425	0.276	0.155	0.614	0.117
POTASSIUM, TOTAL	mg/L	3.88	2.59	3.4	9.33	4.49	5.57	4.19
SODIUM, TOTAL	mg/L	5.52	5.64	5.89	28.1	41.4	24.5	13.6
SULFATE, TOTAL	mg/L	63.9	39.7	47.3	42.8	41.7	66	42.4
Sum		596.7	611.5	515.0	634.7	572.9	599.8	345.3

Analyte	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	57%	63%	58%	55%	58%	55%	53%
BORON, TOTAL	0.01%	0.019%	0.014%	0.019%	0.016%	0.035%	0.056%
CALCIUM, TOTAL	21%	23%	22%	20%	17%	21%	19%
CHLORIDE, TOTAL	2.6%	1.8%	2.9%	7.9%	5.9%	4.1%	5.4%
FLUORIDE, TOTAL	0.049%	0.056%	0.054%	0.069%	0.04%	0.063%	0.072%
IRON, TOTAL	1.3%	0.022%	1.2%	0.0017%	0.0019%	0.0018%	0.098%
MAGNESIUM, TOTAL	5.2%	4.7%	4.8%	4.6%	3.7%	4%	5%
MANGANESE, TOTAL	0.085%	0.04%	0.083%	0.043%	0.027%	0.1%	0.034%
POTASSIUM, TOTAL	0.65%	0.42%	0.66%	1.5%	0.78%	0.93%	1.2%
SODIUM, TOTAL	0.93%	0.92%	1.1%	4.4%	7.2%	4.1%	3.9%
SULFATE, TOTAL	11%	6.5%	9.2%	6.7%	7.3%	11%	12%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-LB-2	S-LB4
ALKALINITY	mg/L	141	117	170	244	223	133	115
BORON, TOTAL	mg/L	21.3	32.2	30	19.5	0.702	4.51	6.5
CALCIUM, TOTAL	mg/L	199	260	218	99.2	80.8	112	94.1
CHLORIDE, TOTAL	mg/L	21.1	16.6	22.1	26.5	7	25.7	38.2
FLUORIDE, TOTAL	mg/L	0.68	0.58	0.26	0.66	0.41	1.3	1.1
IRON, TOTAL	mg/L	0.285	1.01	7.75	3.79	4.72	0.0062	0.057
MAGNESIUM, TOTAL	mg/L	5.2	11.9	27	21.1	19.4	0.122	0.108
MANGANESE, TOTAL	mg/L	0.177	0.604	1.59	0.418	0.563	0.0009	0.0009
POTASSIUM, TOTAL	mg/L	25.1	18.4	16.8	10.9	4.43	24.9	25.2
SODIUM, TOTAL	mg/L	58.1	83.7	75.4	33.6	8.36	108	76.1
SULFATE, TOTAL	mg/L	480	712	628	120	52.9	451	318
Sum		951.9	1254.0	1196.9	579.7	402.3	860.5	674.4

Analyte	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-LB-2	S-LB4
ALKALINITY	15%	9.3%	14%	42%	55%	15%	17%
BORON, TOTAL	2.2%	2.6%	2.5%	3.4%	0.17%	0.52%	0.96%
CALCIUM, TOTAL	21%	21%	18%	17%	20%	13%	14%
CHLORIDE, TOTAL	2.2%	1.3%	1.8%	4.6%	1.7%	3%	5.7%
FLUORIDE, TOTAL	0.071%	0.046%	0.022%	0.11%	0.1%	0.15%	0.16%
IRON, TOTAL	0.03%	0.081%	0.65%	0.65%	1.2%	0.00072%	0.0085%
MAGNESIUM, TOTAL	0.55%	0.95%	2.3%	3.6%	4.8%	0.014%	0.016%
MANGANESE, TOTAL	0.019%	0.048%	0.13%	0.072%	0.14%	0.0001%	0.00013%
POTASSIUM, TOTAL	2.6%	1.5%	1.4%	1.9%	1.1%	2.9%	3.7%
SODIUM, TOTAL	6.1%	6.7%	6.3%	5.8%	2.1%	13%	11%
SULFATE, TOTAL	50%	57%	52%	21%	13%	52%	47%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Value from pore-water from 2018 SCPB ASD investigation.
3) Unit abbreviations - mg/L - milligrams per liter.
4) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration
Sioux Energy Center, St. Charles County, MO

Analyte	Units	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	mg/L	468	228	549	219	185	170	326
BORON, TOTAL	mg/L	17.9	7.68	111	0.348	79.5	67.8	10.7
CALCIUM, TOTAL	mg/L	40.1	101	825	73.4	548	501	37.2
CHLORIDE, TOTAL	mg/L	30.5	25	26	20.5	27.1	23.1	51.7
FLUORIDE, TOTAL	mg/L	1.2	1.2	0.79	0.22	2.9	0.6	1.8
IRON, TOTAL	mg/L	0.0219	0.779	0.0062	1.35	0.138	0.0343	0.0697
MAGNESIUM, TOTAL	mg/L	0.0284	23.9	4.88	20	60.2	9.6	0.0387
MANGANESE, TOTAL	mg/L	0.0009	0.0979	0.0009	0.113	0.202	0.0179	0.0009
POTASSIUM, TOTAL	mg/L	91	11.8	55.2	4.35	60.3	40.1	74.9
SODIUM, TOTAL	mg/L	267	27	81.4	13.9	116	58.5	314
SULFATE, TOTAL	mg/L	393	200	2080	48.5	1820	1290	630
Sum		1308.8	626.5	3733.3	401.7	2899.3	2160.8	1446.4

Analyte	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	36%	36%	15%	55%	6.4%	7.9%	23%
BORON, TOTAL	1.4%	1.2%	3%	0.087%	2.7%	3.1%	0.74%
CALCIUM, TOTAL	3.1%	16%	22%	18%	19%	23%	2.6%
CHLORIDE, TOTAL	2.3%	4%	0.7%	5.1%	0.93%	1.1%	3.6%
FLUORIDE, TOTAL	0.092%	0.19%	0.021%	0.055%	0.1%	0.028%	0.12%
IRON, TOTAL	0.0017%	0.12%	0.00017%	0.34%	0.0048%	0.0016%	0.0048%
MAGNESIUM, TOTAL	0.0022%	3.8%	0.13%	5%	2.1%	0.44%	0.0027%
MANGANESE, TOTAL	0.000069%	0.016%	0.000024%	0.028%	0.007%	0.00083%	0.000062%
POTASSIUM, TOTAL	7%	1.9%	1.5%	1.1%	2.1%	1.9%	5.2%
SODIUM, TOTAL	20%	4.3%	2.2%	3.5%	4%	2.7%	22%
SULFATE, TOTAL	30%	32%	56%	12%	63%	60%	44%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2021 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: JSI
Checked By: LMS
Reviewed By: MNH

APPENDIX C

Alternative Source Demonstration - March-April 2022 Sampling Event

TECHNICAL MEMORANDUM

DATE November 11, 2022 **Project No.** 153140604

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

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G. **EMAIL Jeffrey.Ingram@WSP.com**

SCPB – ALTERNATIVE SOURCE DEMONSTRATION – MARCH-APRIL 2022 SAMPLING EVENT

1.0 INTRODUCTION

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

2.0 BACKGROUND

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

- **Geochemical Signatures –** As reflected on the piper diagrams of the November 2017 ASD, SCPA pore-water has a distinctly different signature than the pore-water from the SCPB. CCR groundwater samples in monitoring wells with SSIs plot on the piper diagrams in a location between the SCPA pore-water zone and the background groundwater zone, indicating that well water chemistry is a mixture of unaffected groundwater and groundwater impacted by the SCPA. None of the downgradient monitoring wells reflect a geochemical signature in the SCPB pore-water zone, or in the area that is strictly the SCPB mixing zone.

- **USEPA FALCON Analysis** – The USEPA FALCON method compared constituent fingerprints of the downgradient monitoring wells with those of the background groundwater, SCPB pore-water, and SCPA pore-water. The results indicate that there is strong correlation between downgradient monitoring wells, SCPA pore-water, and background groundwater, as compared with SCPB pore-water. These same correlations were found at depth within the alluvial aquifer in the temporary ASD piezometers.

- **Groundwater Flow Direction** – Potentiometric surface mapping demonstrates that groundwater flow directions onsite are variable and can temporarily flow in multiple directions, but generally groundwater flow exhibits an east-southeast flow direction, depending on the river level in the adjacent Mississippi and Missouri Rivers. This supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells relative to both the SCPA and SCPB, because impacted monitoring wells around the SCPB are generally located downgradient from the SCPA.

- **SCPB Construction** – The SCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 419 feet above mean sea level (FT MSL). This, along with the presence of key CCR indicators in the shallow, intermediate (middle), and deep zones of the alluvial aquifer, indicate that impacts present onsite are from the SCPA and not the shallow, lined SCPB.

A copy of the ASD report for the November 2017 sampling event is provided in Appendix B of the 2018 SCPB Annual Groundwater Monitoring and Corrective Action Report.

3.0 MARCH-APRIL 2022 SAMPLING EVENT

A summary of the March-April 2022 sampling results is provided in **Table 1**. As discussed in **Section 2.0**, there are several LOEs presented in the November 2017 ASD that demonstrate impacts around the SCPB are caused by the SCPA and not the SCPB. Both CCR units are now capped and closed with a geomembrane cover system and the same LOEs are still present at the site. The following summarizes the LOEs that indicate exceedances in the March-April 2022 sampling event around the SCPB are from the SCPA and not the SCPB using current monitoring data through the March-April 2022 sampling event.

- **Geochemical Signatures – Figure 1** of this Technical Memorandum is a Piper Diagram which displays a comparison of March-April 2022 SCPB CCR Rule groundwater monitoring well data to cation and anion data for the SCPA pore-water, SCPB pore-water, and background groundwater zones. As shown in **Figure 1**, and as expected, since the SSIs are a result of the SCPA, the March-April 2022 SCPB monitoring results would be expected to plot in and between the background groundwater quality (yellow section) and the SCPA pore-water (green hexagon) on the piper diagram. As described in the ASD for the November 2017 Sampling Event, current results displayed in **Figure 1** continue to demonstrate that groundwater quality in the monitoring wells around the SCPB are impacted by the SCPA and not the SCPB.

- **USEPA FALCON ANALYSIS –** The USEPA FALCON method compared constituent fingerprints from the downgradient monitoring wells with those of background groundwater, SCPB pore-water, and SCPA pore-water. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A**. An updated calculation using data from the March-April 2022 sampling event was completed and a summary of the results is provided in **Table 5** of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both the SCPA pore-water and background groundwater, while there is low correlation between downgradient monitoring well data and SCPB pore-water.

- **Groundwater Flow Direction –** Potentiometric surface mapping from 2018 to 2022 continue to show that while groundwater conditions are variable due to the site's location between the Mississippi and Missouri Rivers, net groundwater flow is toward the east-southeast, which supports the conclusion that the unlined SCPA is the source of impacts at the SCPB downgradient monitoring wells because the impacted monitoring wells around the SCPB are generally located downgradient of the SCPA.

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

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence all demonstrate that SSIs reported for the March-April 2022 sampling event for the SCPB CCR unit were not caused by impacts from the SCPB surface impoundment. The SCPA surface impoundment, located immediately adjacent and upgradient to the SCPB, is the source of the SSIs for groundwater in the SCPB monitoring well network.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – March-April 2022 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *SCPB – Alternative Source Demonstration – March-April 2022 Sampling Event* located at 8501 Missouri 94, West Alton, Missouri 63386 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

Golder Associates USA Inc.

Mark Haddock
Director, Practice Leader

EMS/JSI/SEP/MNH

Attachments: Table 1 – March-April 2022 Detection Monitoring Results
Figure 1 – SCPB Piper Diagram for March-April 2022
Appendix A – FALCON Analysis Calculation Package

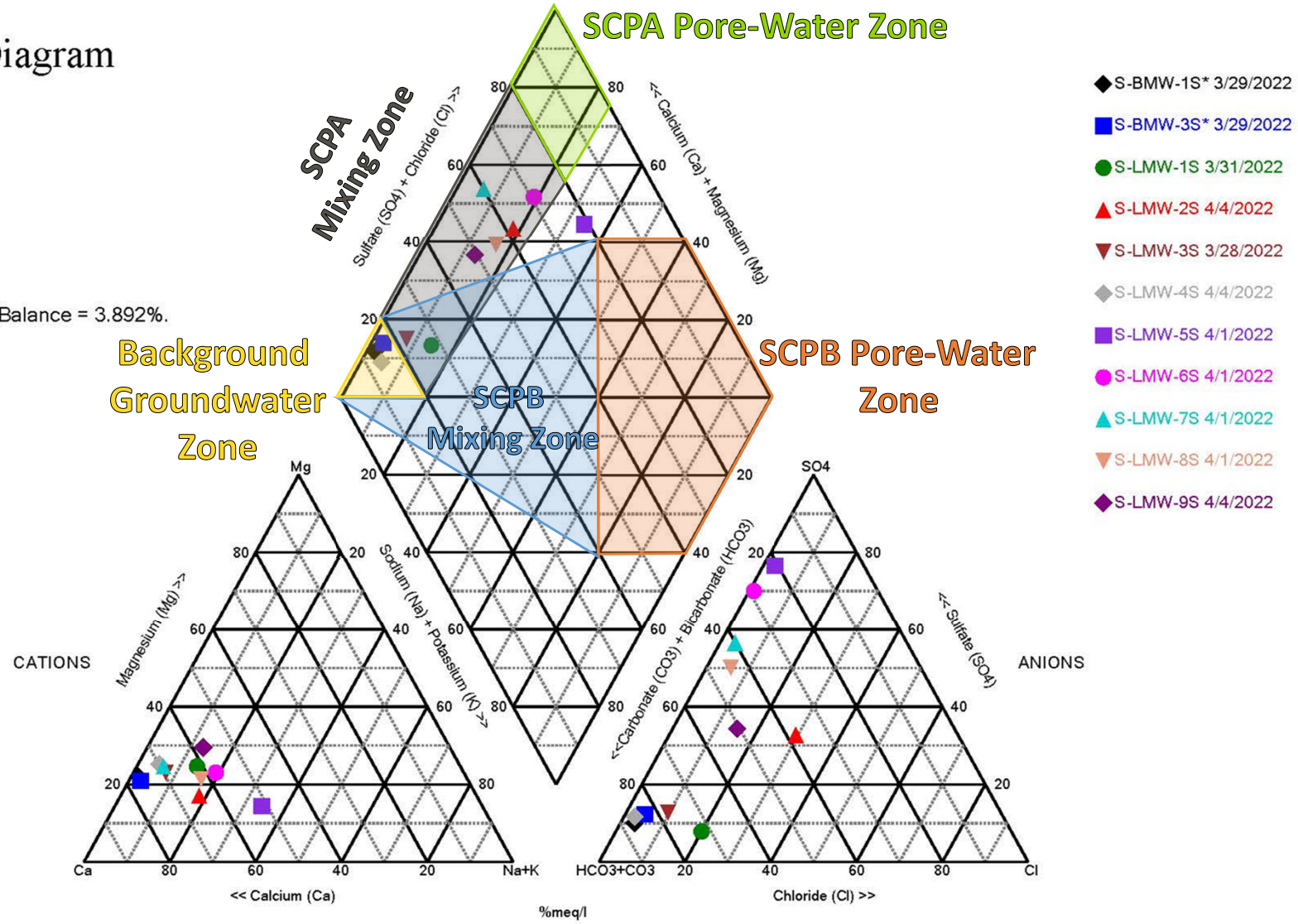
Table 1
March-April 2022 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
March-April 2022 Detection Monitoring Event													
DATE	NA	NA	3/29/2022	3/29/2022	3/31/2022	4/4/2022	3/28/2022	4/4/2022	4/1/2022	4/1/2022	4/1/2022	4/1/2022	4/4/2022
pH	SU	6.472-7.531	6.80	6.94	7.43	6.82	6.86	6.73	6.85	6.82	6.85	6.78	6.61
BORON, TOTAL	µg/L	120.5	68.0 J	70.7 J	231	7,520	211	594	16,300	26,100	2,700	4,340	1,450
CALCIUM, TOTAL	µg/L	166,512	173,000	147,000	73,000	201,000	166,000	175,000	264,000	260,000	ND	190,000	235,000
CHLORIDE, TOTAL	mg/L	13.12	8.5	11.8	30.8	161	33.4	5.7 J	17.1	2.5	16.7	23.3	88.7
FLUORIDE, TOTAL	mg/L	0.416	0.30	0.36	0.27	ND	ND	ND	0.39	0.19 J	ND	0.37	0.28
SULFATE, TOTAL	mg/L	36.69	44.9	47.8	16.7	249	65.0	60.2	899	705	483 J	326	299
TOTAL DISSOLVED SOLIDS	mg/L	579	591	508	334	981	621	647	1,610	1,470	1,070	980	1,170 J
June 2022 Verification Sampling Event													
DATE	NA	NA					6/7/2022	6/7/2022					
pH	SU	6.472-7.531											
BORON, TOTAL	µg/L	120.5											
CALCIUM, TOTAL	µg/L	166,512											
CHLORIDE, TOTAL	mg/L	13.12											
FLUORIDE, TOTAL	mg/L	0.416											
SULFATE, TOTAL	mg/L	36.69					43.4	109					
TOTAL DISSOLVED SOLIDS	mg/L	579											

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

Prepared By: GTM
Checked By: BTT
Reviewed By: MNH

Piper Diagram



Notes
1) Piper diagram generated using Sanitas Software.
2) %mEq/l – milliequivalents per liter
3) Calcium data used for LMW-7S represents an average of calcium values collected since 2016. The April 2022 result is an anomalous outlier which does not accurately represent groundwater conditions at the well.

CLIENT/PROJECT **AMEREN MISSOURI** **SIOUX ENERGY CENTER**				WSP GOLDER			TITLE **SCPB PIPER DIAGRAM FOR MARCH AND APRIL 2022**			
PREPARED EMS	CHECKED BTT	REVIEWED MNH	DATE 2022-08-08	SCALE N/A	FILE NO. N/A	PROJECT NUMBER 153140604	DWG NO. N/A	SUBTITLE N/A	REV. NO. N/A	FIGURE 1

APPENDIX A

FALCON Analysis Calculation Package

CALCULATION PACKAGE

DATE November 11, 2022 **Project No.** 153140604

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

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G. **EMAIL Jeffrey.Ingram@WSP.com**

APPENDIX A - SCPB FALCON ANALYSIS CALCULATION PACKAGE

1.0 OBJECTIVE

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

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method compiles ion ratios for multiple constituents in order to develop a distinctive chemical fingerprint for each possible contaminant source and un-impacted background groundwater. These signatures are then correlated to data downgradient of the sources and are used to characterize the source of the contaminant plume. For this calculation, background groundwater quality is based on background wells located approximately 0.50 to 0.75 miles west of the SCPB. Source data is from pore-water collected from temporary piezometers within the SCPA and SCPB. Fingerprints from these three sources (background groundwater, SCPA pore-water, and SCPB pore-water) are compared to data from alluvial aquifer sampling locations at the SEC. Data from the SCPA and SCPB pore-water are from the November 2017 ASD for the SCPB, which is available in the 2018 Annual Report for the SCPB. Data from the background and compliance monitoring wells are from the April 2022 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis is to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each water type. Constituents selected included major cation and anion constituents that represent groundwater chemistry as well as key indicators of CCR impacts. Values of the three different sources were compared to see which constituents fit the criteria. A summary table of the values used for the three sources is provided in **Table 1**. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Boron
- Total Calcium
- Total Chloride
- Total Fluoride
- Total Iron
- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized and a graphical presentation of the fingerprints was produced. These steps are provided in **Table 1** for the three different sources (background groundwater, SCPA pore-water, and SCPB pore-water), as well as each monitoring well evaluated. Correlations were then completed between the different sources to determine each source's reproducibility. Tables displaying these correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

Table 2 - Background Groundwater Correlations				
Well ID	*S-BMW-1D*	*S-BMW-1S*	*S-BMW-3D*	*S-BMW-3S*
S-BMW-1D				
S-BMW-1S	99.9%			
S-BMW-3D	100.0%	99.9%		
S-BMW-3S	99.9%	100.0%	99.8%	
Average Fingerprint Reproducibility			99.9%	

Table 3 – SCPB Pore-water Correlations

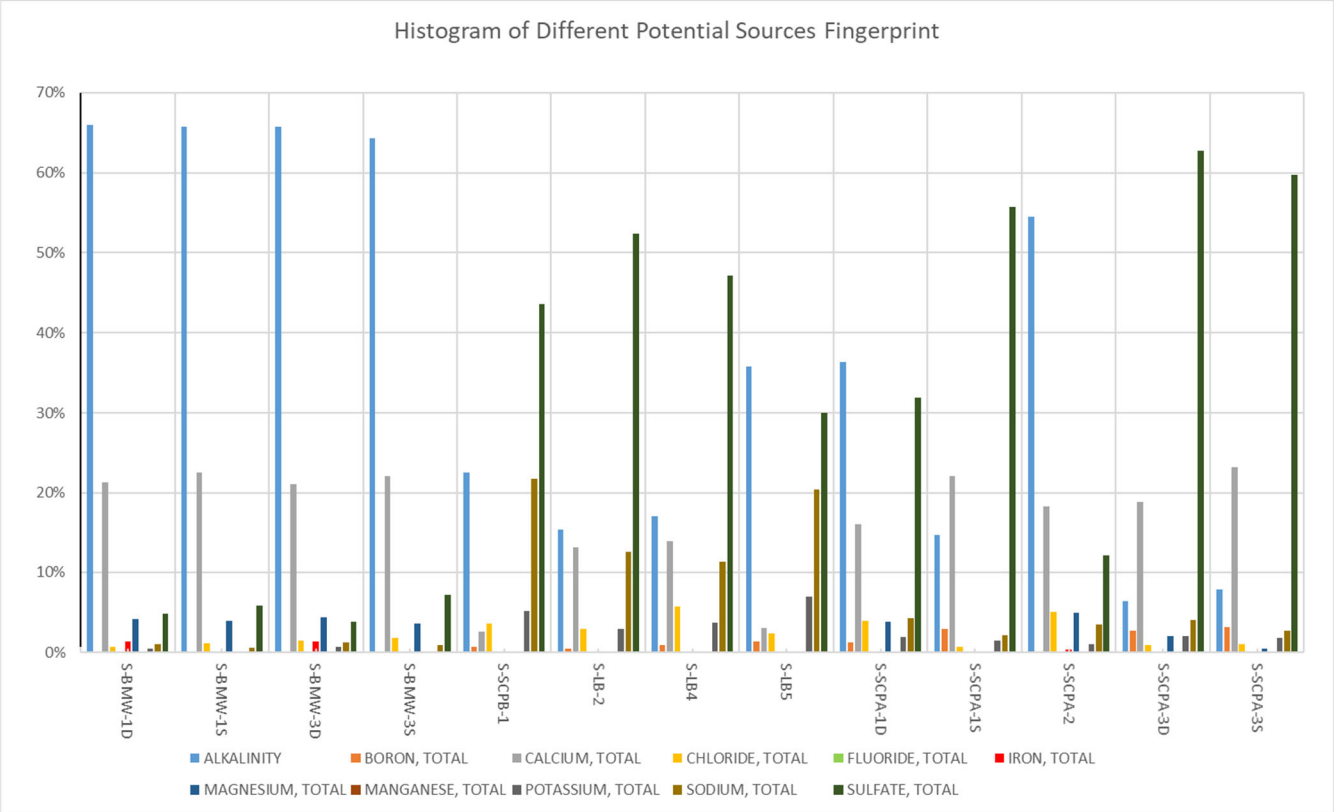
Table 3 – SCPB Pore-water Correlations				
Well ID	*S-LB-2*	*S-LB-4*	*S-LB-5*	*S-SCPB-1*
S-LB-2				
S-LB-4	99.6%			
S-LB-5	74.8%	76.9%		
S-SCPB-1	93.0%	92.8%	90.5%	
Average Fingerprint Reproducibility			87.9%	

Table 4 – SCPA Pore-water Correlations

Table 4 – SCPA Pore-water Correlations					
Well ID	*S-SCPA-1D*	*S-SCPA-1S*	*S-SCPA-2*	*S-SCPA-3D*	*S-SCPA-3S*
S-SCPA-1D					
S-SCPA-1S	78.8%				
S-SCPA-2	84.8%	35.6%			
S-SCPA-3D	67.8%	98.2%	19.1%		
S-SCPA-3S	70.3%	99.1%	23.4%	99.5%	
Average Fingerprint Reproducibility				67.7%	
Average Fingerprint Reproducibility (without SCPA-2)				85.6%	

Additionally, **Figure 1** below displays a histogram of the different source water normalizations.

Figure 1 – Histogram of Source Water Normalizations at the SEC



After reviewing the correlations for the SCPA pore-water, it is evident that there are some poor correlations between the different source water sampling points. This is likely caused by the historical placement of ash in the CCR unit and pore-water flow within the SCPA. SCPA-1 and SCPA-3 locations have a strong correlation and are both located in areas where more fly ash has been managed. SCPA-2 is located in the northern portion of the pond where mostly bottom ash has been managed.

Due to relatively different porewater chemistries within the SCPA, the SCPA will be divided into two separate sources for comparison which include (1) an average of the southern locations (SCPA-1S, SCPA-1D, SCPA-3S, and SCPA-3D), and (2) SCPA-2. Separating the SCPA into two potential sources more accurately reflects the conditions within the SCPA, due to its spatial variation.

5.0 CORRELATING ALLUVIAL AQUIFER SAMPLES WITH SOURCES

A correlation between the average groundwater concentration and the different source waters was completed to demonstrate which source better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results demonstrate that groundwater in the alluvial aquifer either correlates with the SCPA pore-water or background groundwater but shows a lower degree of correlation with the SCPB pore-water. As shown in the table below, in no case did a downgradient alluvial aquifer sample correlate better with the SCPB pore-water than with the SCPA pore-water or background groundwater.

Table 5 – Summary of March-April 2022 USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Average	SCPB Average	SCPA Average (no SCPA-2)	SCPA-2 Average	
S-AM-1D	99%	46%	35%	100%	SCPA-2
S-AM-1S	100%	43%	32%	100%	SCPA-2
S-DG-1	100%	40%	30%	99%	Background
S-DG-2	100%	40%	31%	99%	Background
S-DG-3	100%	42%	34%	99%	Background
S-DG-4	100%	42%	32%	99%	Background
S-LMW-1S	99%	37%	26%	99%	Background
S-LMW-2S	82%	72%	68%	89%	SCPA-2
S-LMW-3S	100%	42%	32%	100%	Background
S-LMW-4S	100%	40%	30%	99%	Background
S-LMW-5S	30%	96%	98%	41%	SCPA
S-LMW-6S	46%	94%	97%	57%	SCPA
S-LMW-7S	69%	87%	88%	77%	SCPA
S-LMW-8S	78%	84%	82%	85%	SCPA-2
S-LMW-9S	91%	69%	63%	96%	SCPA-2

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Average	SCPB Average	SCPA Average (no SCPA-2)	SCPA-2 Average	
S-PZ-1S	77%	26%	16%	80%	SCPA-2
S-PZ-9D	74%	84%	85%	81%	SCPA
S-TMW-1	99%	49%	42%	100%	SCPA-2
S-TMW-2	99%	50%	43%	99%	SCPA-2
S-TMW-3	100%	41%	32%	99%	Background
S-TP-2D	1%	74%	93%	12%	SCPA
S-TP-3D	99%	52%	43%	100%	SCPA-2
S-TP-4D	96%	61%	54%	98%	SCPA-2
S-TP-5D	53%	94%	95%	63%	SCPA
S-TP-6D	100%	41%	32%	99%	Background
S-TP-6S	100%	38%	29%	99%	Background
S-TP-8D	100%	41%	31%	99%	Background
S-UG-1A	97%	58%	50%	99%	SCPA-2
S-UG-2	98%	50%	37%	100%	SCPA-2
S-UG-3	98%	35%	21%	97%	Background
S-UMW-1D	99%	48%	39%	100%	SCPA-2
S-UMW-2D	24%	91%	100%	35%	SCPA
S-UMW-3D	10%	88%	98%	21%	SCPA
S-UMW-4D	28%	93%	100%	39%	SCPA
S-UMW-5D	99%	39%	26%	99%	Background
S-UMW-6D	99%	49%	41%	100%	SCPA-2

Notes

1) Values display percent correlation between each sampling point and the SCPA Average (SCPA-1 and SCPA-3), SCPA-2 Average, SCPB Average, or Background Average fingerprints.
2) The higher values are shaded darker and indicate better correlation.

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	mg/L	218	245	423	505	352	428	424
BORON, TOTAL	mg/L	7.520	1.66	0.118	0.068	0.05	0.0707	0.096
CALCIUM, TOTAL	mg/L	75.7	80.4	137	173	113	147	131
CHLORIDE, TOTAL	mg/L	26.6	22.3	4.3	8.5	7.9	11.8	4
FLUORIDE, TOTAL	mg/L	0.53	0.49	0.26	0.3	0.28	0.36	0.32
IRON, TOTAL	mg/L	2.5	1.09	9.04	0.0106	7.44	0.0106	0.226
MAGNESIUM, TOTAL	mg/L	16.0	17	26.5	30	23.7	24.1	28.8
MANGANESE, TOTAL	mg/L	0.3	1.18	0.862	0.675	0.503	0.215	0.0488
POTASSIUM, TOTAL	mg/L	6.7	7.38	2.9	0.47	3.79	0.569	4.85
SODIUM, TOTAL	mg/L	23	19.1	6.85	4.9	6.56	6.27	4.41
SULFATE, TOTAL	mg/L	40	34.5	30.9	44.9	20.6	47.8	45.9
Sum		416.7	430.1	641.7	767.8	535.8	666.2	643.7

Analyte	S-AM-1D	S-AM-1S	S-BMW-1D	S-BMW-1S	S-BMW-3D	S-BMW-3S	S-DG-1
ALKALINITY	52%	57%	66%	66%	66%	64%	66%
BORON, TOTAL	1.8%	0.39%	0.018%	0.0089%	0.0097%	0.011%	0.015%
CALCIUM, TOTAL	18%	19%	21%	23%	21%	22%	20%
CHLORIDE, TOTAL	6.4%	5.2%	0.67%	1.1%	1.5%	1.8%	0.62%
FLUORIDE, TOTAL	0.13%	0.11%	0.041%	0.039%	0.052%	0.054%	0.05%
IRON, TOTAL	0.61%	0.25%	1.4%	0.0014%	1.4%	0.0016%	0.035%
MAGNESIUM, TOTAL	3.8%	4%	4.1%	3.9%	4.4%	3.6%	4.5%
MANGANESE, TOTAL	0.083%	0.27%	0.13%	0.088%	0.094%	0.032%	0.0076%
POTASSIUM, TOTAL	1.6%	1.7%	0.45%	0.061%	0.71%	0.085%	0.75%
SODIUM, TOTAL	5.5%	4.4%	1.1%	0.64%	1.2%	0.94%	0.69%
SULFATE, TOTAL	9.6%	8%	4.8%	5.8%	3.8%	7.2%	7.1%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from March-April 2022 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	mg/L	418	460	487	204	376	513	577
BORON, TOTAL	mg/L	0.0912	0.0933	0.117	0.231	7.52	0.211	0.594
CALCIUM, TOTAL	mg/L	130	163	144	73	201	166	175
CHLORIDE, TOTAL	mg/L	3.6	8.5	15.6	30.8	161	33.4	5.7
FLUORIDE, TOTAL	mg/L	0.38	0.38	0.35	0.27	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.174	2.25	0.0106	0.105	0.0581	0.0106	0.0106
MAGNESIUM, TOTAL	mg/L	27.3	28.3	40.6	17.7	31.8	33.1	38.6
MANGANESE, TOTAL	mg/L	0.432	1.11	1.03	0.195	0.461	0.0129	0.0546
POTASSIUM, TOTAL	mg/L	5.93	6.15	7.95	5.83	9.5	4.37	4.96
SODIUM, TOTAL	mg/L	4.42	5.15	6.99	15.9	59.9	18.5	11.1
SULFATE, TOTAL	mg/L	45.9	63.9	65.1	16.7	249	65	60.2
Sum		636.2	738.8	768.7	364.7	1096.3	833.7	873.3

Analyte	S-DG-2	S-DG-3	S-DG-4	S-LMW-1S	S-LMW-2S	S-LMW-3S	S-LMW-4S
ALKALINITY	66%	62%	63%	56%	34%	62%	66%
BORON, TOTAL	0.014%	0.013%	0.015%	0.063%	0.69%	0.025%	0.068%
CALCIUM, TOTAL	20%	22%	19%	20%	18%	20%	20%
CHLORIDE, TOTAL	0.57%	1.2%	2%	8.4%	15%	4%	0.65%
FLUORIDE, TOTAL	0.06%	0.051%	0.046%	0.074%	0.0055%	0.0072%	0.0069%
IRON, TOTAL	0.027%	0.3%	0.0014%	0.029%	0.0053%	0.0013%	0.0012%
MAGNESIUM, TOTAL	4.3%	3.8%	5.3%	4.9%	2.9%	4%	4.4%
MANGANESE, TOTAL	0.068%	0.15%	0.13%	0.053%	0.042%	0.0015%	0.0063%
POTASSIUM, TOTAL	0.93%	0.83%	1%	1.6%	0.87%	0.52%	0.57%
SODIUM, TOTAL	0.69%	0.7%	0.91%	4.4%	5.5%	2.2%	1.3%
SULFATE, TOTAL	7.2%	8.6%	8.5%	4.6%	23%	7.8%	6.9%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from March-April 2022 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	mg/L	320	378	438	370	567	260	336
BORON, TOTAL	mg/L	16.3	26.1	2.7	4.34	1.45	2.83	4.45
CALCIUM, TOTAL	mg/L	264	260	230	190	235	90.4	180
CHLORIDE, TOTAL	mg/L	17.1	2.5	16.7	23.3	88.7	199	11.2
FLUORIDE, TOTAL	mg/L	0.39	0.19	0.06	0.37	0.28	0.06	0.06
IRON, TOTAL	mg/L	0.12	0.0106	0.0106	0.0106	0.0106	4.51	10.8
MAGNESIUM, TOTAL	mg/L	45.3	63.2	49.9	39.2	73.3	17.4	39.4
MANGANESE, TOTAL	mg/L	1.71	0.487	0.611	0.648	0.39	0.964	1.09
POTASSIUM, TOTAL	mg/L	5.09	4.93	4.56	4.8	5.19	3.15	4.66
SODIUM, TOTAL	mg/L	201	96.3	20.5	54.8	56.2	19.9	19.8
SULFATE, TOTAL	mg/L	899	705	483	326	299	27.4	332
Sum		1770.0	1536.7	1246.0	1013.5	1326.5	625.6	939.5

Analyte	S-LMW-5S	S-LMW-6S	S-LMW-7S	S-LMW-8S	S-LMW-9S	S-PZ-1S	S-PZ-9D
ALKALINITY	18%	25%	35%	37%	43%	42%	36%
BORON, TOTAL	0.92%	1.7%	0.22%	0.43%	0.11%	0.45%	0.47%
CALCIUM, TOTAL	15%	17%	18%	19%	18%	14%	19%
CHLORIDE, TOTAL	0.97%	0.16%	1.3%	2.3%	6.7%	32%	1.2%
FLUORIDE, TOTAL	0.022%	0.012%	0.0048%	0.037%	0.021%	0.0096%	0.0064%
IRON, TOTAL	0.0068%	0.00069%	0.00085%	0.001%	0.0008%	0.72%	1.1%
MAGNESIUM, TOTAL	2.6%	4.1%	4%	3.9%	5.5%	2.8%	4.2%
MANGANESE, TOTAL	0.097%	0.032%	0.049%	0.064%	0.029%	0.15%	0.12%
POTASSIUM, TOTAL	0.29%	0.32%	0.37%	0.47%	0.39%	0.5%	0.5%
SODIUM, TOTAL	11%	6.3%	1.6%	5.4%	4.2%	3.2%	2.1%
SULFATE, TOTAL	51%	46%	39%	32%	23%	4.4%	35%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from March-April 2022 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).
4) The calcium value represented for LMW-7S is an average of all available calcium data at the well. The March-April 2022 result is a non-detect outlier which does not accurately represent observed calcium concentrations at LMW-7S.

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	mg/L	284	328	406	2.3	326	291	161
BORON, TOTAL	mg/L	0.0768	0.0849	0.0956	0.122	0.0986	0.0871	8.21
CALCIUM, TOTAL	mg/L	103	124	132	265	109	105	102
CHLORIDE, TOTAL	mg/L	3.2	3.4	2.4	72	9.2	9.7	28
FLUORIDE, TOTAL	mg/L	0.36	0.34	0.3	0.06	0.21	0.22	0.36
IRON, TOTAL	mg/L	0.0106	1.14	1.63	16.9	7.49	6.09	7.31
MAGNESIUM, TOTAL	mg/L	18.2	22.1	23.9	70.5	26.5	26	25
MANGANESE, TOTAL	mg/L	0.254	0.372	0.455	1.32	0.613	0.378	0.827
POTASSIUM, TOTAL	mg/L	4.44	5.31	6.28	6.26	3.83	3.48	4.45
SODIUM, TOTAL	mg/L	3.15	3.82	4.62	26.5	6.91	9.38	37
SULFATE, TOTAL	mg/L	64.9	79	51	500	84.2	112	254
Sum		481.6	567.6	628.7	961.0	574.1	563.3	628.2

Analyte	S-TMW-1	S-TMW-2	S-TMW-3	S-TP-2D	S-TP-3D	S-TP-4D	S-TP-5D
ALKALINITY	59%	58%	65%	0.24%	57%	52%	26%
BORON, TOTAL	0.016%	0.015%	0.015%	0.013%	0.017%	0.015%	1.3%
CALCIUM, TOTAL	21%	22%	21%	28%	19%	19%	16%
CHLORIDE, TOTAL	0.66%	0.6%	0.38%	7.5%	1.6%	1.7%	4.5%
FLUORIDE, TOTAL	0.075%	0.06%	0.048%	0.0062%	0.037%	0.039%	0.057%
IRON, TOTAL	0.0022%	0.2%	0.26%	1.8%	1.3%	1.1%	1.2%
MAGNESIUM, TOTAL	3.8%	3.9%	3.8%	7.3%	4.6%	4.6%	4%
MANGANESE, TOTAL	0.053%	0.066%	0.072%	0.14%	0.11%	0.067%	0.13%
POTASSIUM, TOTAL	0.92%	0.94%	1%	0.65%	0.67%	0.62%	0.71%
SODIUM, TOTAL	0.65%	0.67%	0.73%	2.8%	1.2%	1.7%	5.9%
SULFATE, TOTAL	13%	14%	8.1%	52%	15%	20%	40%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from March-April 2022 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	mg/L	353	410	339	316	326	393	186
BORON, TOTAL	mg/L	0.0614	0.0995	0.0895	0.0732	0.113	0.184	0.162
CALCIUM, TOTAL	mg/L	119	134	102	111	97.3	120	63
CHLORIDE, TOTAL	mg/L	13.2	7.8	14.2	10.6	33.7	73.5	18.3
FLUORIDE, TOTAL	mg/L	0.24	0.27	0.27	0.33	0.18	0.35	0.23
IRON, TOTAL	mg/L	7.54	0.092	6.3	0.0106	0.0106	0.0106	0.524
MAGNESIUM, TOTAL	mg/L	28.8	28.7	24.3	25.5	21.4	24.5	16.6
MANGANESE, TOTAL	mg/L	0.496	0.209	0.436	0.443	0.0148	1.12	0.136
POTASSIUM, TOTAL	mg/L	3.85	2.42	3.34	7.05	5.15	5.97	4.13
SODIUM, TOTAL	mg/L	7.22	5.94	5.35	9.0	43.4	52.9	11.8
SULFATE, TOTAL	mg/L	47.6	35.2	42.4	106	66.4	18.6	39.5
Sum		581.0	624.7	537.7	586.0	593.7	690.1	340.4

Analyte	S-TP-6D	S-TP-6S	S-TP-8D	S-UG-1A	S-UG-2	S-UG-3	S-UMW-1D
ALKALINITY	61%	66%	63%	54%	55%	57%	55%
BORON, TOTAL	0.011%	0.016%	0.017%	0.012%	0.019%	0.027%	0.048%
CALCIUM, TOTAL	20%	21%	19%	19%	16%	17%	19%
CHLORIDE, TOTAL	2.3%	1.2%	2.6%	1.8%	5.7%	11%	5.4%
FLUORIDE, TOTAL	0.041%	0.043%	0.05%	0.056%	0.03%	0.051%	0.068%
IRON, TOTAL	1.3%	0.015%	1.2%	0.0018%	0.0018%	0.0015%	0.15%
MAGNESIUM, TOTAL	5%	4.6%	4.5%	4.4%	3.6%	3.6%	4.9%
MANGANESE, TOTAL	0.085%	0.033%	0.081%	0.076%	0.0025%	0.16%	0.04%
POTASSIUM, TOTAL	0.66%	0.39%	0.62%	1.2%	0.87%	0.87%	1.2%
SODIUM, TOTAL	1.2%	0.95%	1%	1.5%	7.3%	7.7%	3.5%
SULFATE, TOTAL	8.2%	5.6%	7.9%	18%	11%	2.7%	12%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from March-April 2022 samples collected for the CCR Rule.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-LB-2	S-LB4
ALKALINITY	mg/L	111	95.3	174	301	243	133	115
BORON, TOTAL	mg/L	18	29.2	26.5	12.6	0.619	4.51	6.5
CALCIUM, TOTAL	mg/L	170	262	203	89.9	86.8	112	94.1
CHLORIDE, TOTAL	mg/L	22.4	15.5	21.5	24.7	8.4	25.7	38.2
FLUORIDE, TOTAL	mg/L	0.56	0.77	0.06	0.58	0.37	1.3	1.1
IRON, TOTAL	mg/L	0.142	0.928	7.54	3.53	3.94	0.0062	0.057
MAGNESIUM, TOTAL	mg/L	5.07	11.7	24.8	19.6	19.4	0.122	0.108
MANGANESE, TOTAL	mg/L	0.154	0.546	1.63	0.462	0.636	0.0009	0.0009
POTASSIUM, TOTAL	mg/L	24.8	20	16.8	10.9	4.18	24.9	25.2
SODIUM, TOTAL	mg/L	51.1	88	77.2	28.5	9.28	108	76.1
SULFATE, TOTAL	mg/L	413	773	549	26.8	55.7	451	318
Sum		816.2	1296.9	1102.0	518.6	432.3	860.5	674.4

Analyte	S-UMW-2D	S-UMW-3D	S-UMW-4D	S-UMW-5D	S-UMW-6D	S-LB-2	S-LB4
ALKALINITY	14%	7.3%	16%	58%	56%	15%	17%
BORON, TOTAL	2.2%	2.3%	2.4%	2.4%	0.14%	0.52%	0.96%
CALCIUM, TOTAL	21%	20%	18%	17%	20%	13%	14%
CHLORIDE, TOTAL	2.7%	1.2%	2%	4.8%	1.9%	3%	5.7%
FLUORIDE, TOTAL	0.069%	0.059%	0.0054%	0.11%	0.086%	0.15%	0.16%
IRON, TOTAL	0.017%	0.072%	0.68%	0.68%	0.91%	0.00072%	0.0085%
MAGNESIUM, TOTAL	0.62%	0.9%	2.3%	3.8%	4.5%	0.014%	0.016%
MANGANESE, TOTAL	0.019%	0.042%	0.15%	0.089%	0.15%	0.0001%	0.00013%
POTASSIUM, TOTAL	3%	1.5%	1.5%	2.1%	0.97%	2.9%	3.7%
SODIUM, TOTAL	6.3%	6.8%	7%	5.5%	2.1%	13%	11%
SULFATE, TOTAL	51%	60%	50%	5.2%	13%	52%	47%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes
1) Values for CCR Rule monitoring wells from March-April 2022; Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Table 1
Summary of Concentrations Used for Correlation
SCPB Alternative Source Demonstration Sioux
Energy Center, St. Charles County, MO

Analyte	Units	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	mg/L	468	228	549	219	185	170	326
BORON, TOTAL	mg/L	17.9	7.68	111	0.348	79.5	67.8	10.7
CALCIUM, TOTAL	mg/L	40.1	101	825	73.4	548	501	37.2
CHLORIDE, TOTAL	mg/L	30.5	25	26	20.5	27.1	23.1	51.7
FLUORIDE, TOTAL	mg/L	1.2	1.2	0.79	0.22	2.9	0.6	1.8
IRON, TOTAL	mg/L	0.0219	0.779	0.0062	1.35	0.138	0.0343	0.0697
MAGNESIUM, TOTAL	mg/L	0.0284	23.9	4.88	20	60.2	9.6	0.0387
MANGANESE, TOTAL	mg/L	0.0009	0.0979	0.0009	0.113	0.202	0.0179	0.0009
POTASSIUM, TOTAL	mg/L	91	11.8	55.2	4.35	60.3	40.1	74.9
SODIUM, TOTAL	mg/L	267	27	81.4	13.9	116	58.5	314
SULFATE, TOTAL	mg/L	393	200	2080	48.5	1820	1290	630
Sum		1308.8	626.5	3733.3	401.7	2899.3	2160.8	1446.4

Analyte	S-LB5	S-SCPA-1D	S-SCPA-1S	S-SCPA-2	S-SCPA-3D	S-SCPA-3S	S-SCPB-1
ALKALINITY	36%	36%	15%	55%	6.4%	7.9%	23%
BORON, TOTAL	1.4%	1.2%	3%	0.087%	2.7%	3.1%	0.74%
CALCIUM, TOTAL	3.1%	16%	22%	18%	19%	23%	2.6%
CHLORIDE, TOTAL	2.3%	4%	0.7%	5.1%	0.93%	1.1%	3.6%
FLUORIDE, TOTAL	0.092%	0.19%	0.021%	0.055%	0.1%	0.028%	0.12%
IRON, TOTAL	0.0017%	0.12%	0.00017%	0.34%	0.0048%	0.0016%	0.0048%
MAGNESIUM, TOTAL	0.0022%	3.8%	0.13%	5%	2.1%	0.44%	0.0027%
MANGANESE, TOTAL	0.000069%	0.016%	0.000024%	0.028%	0.007%	0.00083%	0.000062%
POTASSIUM, TOTAL	7%	1.9%	1.5%	1.1%	2.1%	1.9%	5.2%
SODIUM, TOTAL	20%	4.3%	2.2%	3.5%	4%	2.7%	22%
SULFATE, TOTAL	30%	32%	56%	12%	63%	60%	44%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

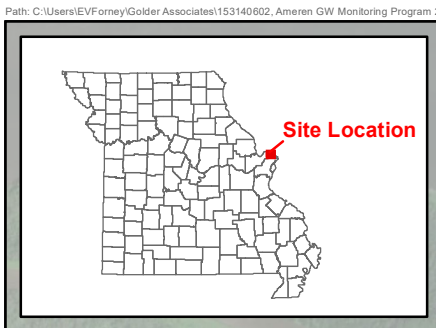
Notes
1) Values for CCR Rule monitoring wells from March-April 2022; Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.
2) Unit abbreviations - mg/L - milligrams per liter.
3) Half (1/2) the value of the Method Detection Limit (MDL) is used for non-detect values (values less than the MDL).

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

APPENDIX D

2022 Potentiometric Surface Maps

Path: C:\Users\EVForney\Golder Associates\153140602, Ameren GW Monitoring Program 2020 - 5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2022 Annual Report\2022-02-07_Sioux_PM_v2.mxd



Mississippi River
Mississippi River Level
419.4

Sioux Energy Center

TP-1S (418.44)
TP-1M (418.47)
TP-1D (418.47)

TP-2S (418.44)
TP-2M (418.40)
TP-2D (418.43)

BMW-2S (418.36)
BMW-2D (418.45)

PZ-2S (418.17)
PZ-2D (418.01)

AM-1S (418.10)
AM-1D (418.05)

UMW-6D (418.10)

PZ-3S (418.01)

LMW-9S (417.73)

PZ-3D (417.98)

UMW-5D (417.70)

BMW-3S (417.27)
BMW-3D (417.19)

BMW-1S (417.23)
BMW-1D (417.24)

UMW-1D (417.33)

LMW-1S (417.50)

PZ-1D (417.01)

SCPA

PZ-1S (416.97)

UMW-4D (416.77)

UMW-2D (416.05)

LMW-8S (416.92)

UMW-3D (416.24)

PZ-4S (416.14)
PZ-4D (416.00)

SCPB

LMW-7S (416.34)

TP-3S (416.98)
TP-3M (416.98)
TP-3D (416.99)

LMW-2S (415.22)

LMW-6S (415.87)

LMW-3S (415.01)

PZ-9S (415.78)
PZ-9D (415.90)

TP-6S (417.94)
TP-6M (417.94)
TP-6D (417.91)

LMW-4S (415.09)

LMW-5S (415.09)

UG-2 (414.49)

TP-5D (415.10)

UG-3 (415.05)

UG-1A (414.74)

TP-5S (414.84)
TP-5M (414.90)

TP-4S (413.91)
TP-4M (413.89)
TP-4D (413.90)

SCL4A

SCPD

SCPC

DG-1 (413.12)

TMW-1 (413.22)

TMW-2 (413.24)

TMW-3 (413.29)

DG-2 (412.62)

DG-3 (412.43)

DG-5 (412.37)

DG-12 (413.55)

DG-4 (412.32)

DG-7 (412.61)

DG-6 (412.49)

DG-9 (412.82)

TP-7S (411.79)
TP-7M (411.81)
TP-7D (411.80)

TP-8S (411.60)
TP-8M (411.61)
TP-8D (411.59)

Estimated Missouri River Level
413.9

Missouri River

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- Proposed SCPD - WFGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) WFGD - WET FLU 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).

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

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
FEBRUARY 7, 2022 POTENTIOMETRIC SURFACE MAP

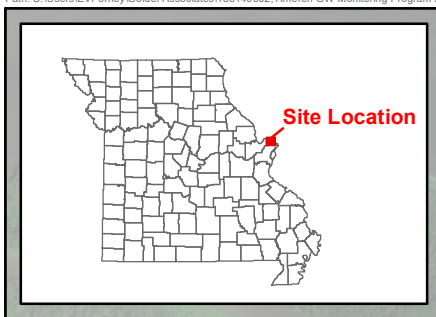
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-12-27
PREPARED	GTM
DESIGN	JSI
REVIEW	SSS
APPROVED	MNH

PROJECT No. 153140604
PHASE 0003
FIGURE **D1**

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

Path: C:\Users\EVForney\Golder Associates\153140602, Ameren GW Monitoring Program 2020 - 5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2022 Annual Report\20220328_Sioux2.mxd



Mississippi River
Mississippi River Level
416.7

Sioux Energy Center

SCPA
SCPB
SCPC
SCPD
SCL4A

TP-2S (416.55)
TP-2M (416.54)
TP-2D (416.54)
TP-1S (416.55)
TP-1M (416.67)
TP-1D (416.67)
BMW-2S (416.74)
BMW-2D (416.63)
PZ-2S (416.95)
PZ-2D (416.96)
AM-1S (416.94)
AM-1D (416.92)
UMW-6D (416.81)
PZ-3S (417.03)
(See Note 7)
PZ-3D (416.99)
LMW-9S (416.86)
UMW-5D
(416.82)
BMW-3S (416.81)
BMW-3D (416.82)
BMW-1S (416.87)
BMW-1D (416.78)
UMW-1D (416.90)
LMW-1S
(416.92)
LMW-8S
(416.68)
PZ-1S (416.62)
PZ-1D (416.58)
UMW-4D (416.46)
PZ-4S (416.18)
PZ-4D (416.21)
UMW-3D (416.13)
UMW-2D
(416.10)
LMW-2S
(416.19)
LMW-7S (416.30)
TP-3S (416.63)
TP-3M (416.63)
TP-3D (416.63)
LMW-6S (416.04)
LMW-3S
(415.38)
LMW-4S
(415.43)
LMW-5S (415.60)
PZ-9S (416.13)
PZ-9D (416.11)
TP-6S (415.32)
TP-6M (415.33)
TP-6D (415.32)
UG-1A (415.26)
TP-5S (415.22)
TP-5M (415.29)
TP-5D (415.27)
UG-2
(414.92)
UG-3
(415.48)
TP-4S (415.35)
TP-4M (415.35)
TP-4D (415.42)
DG-1 (414.12)
TP-7S (413.31)
TP-7M (413.37)
TP-7D (413.38)
DG-2
(413.81)
TMW-1
(414.01)
TMW-2
(414.04)
TMW-3
(414.05)
TMW-4
(413.72)
TMW-5
(413.69)
TMW-6
(413.81)
DG-3
(413.76)
DG-4
(413.76)
DG-5
(413.75)
DG-6
(413.76)
DG-7 (413.79)
DG-9 (413.79)
DG-12
(414.24)
TP-8S (413.00)
TP-8M (413.06)
TP-8D (413.07)

416
415
414
415
416
417
418

Estimated Missouri River Level
418.3
Missouri River

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- Proposed SCPD - WFGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) WFGD - WET FLUE GAS DESULFURIZATION.
7.) PZ-3S NOT USED IN POTENTIOMETRIC SURFACE MAP.

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).

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
MARCH 28, 2022 POTENTIOMETRIC SURFACE MAP

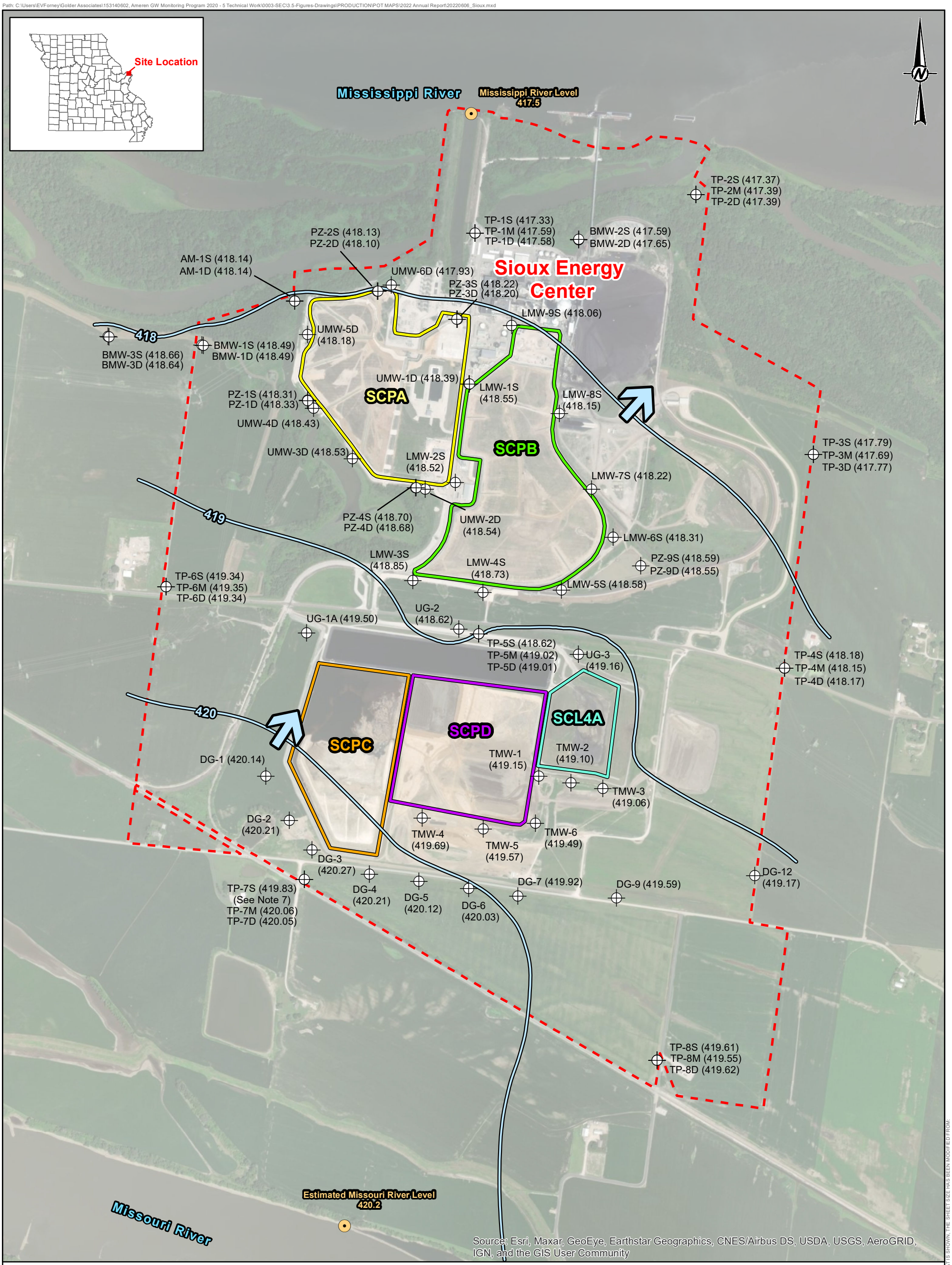
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-12-27
PREPARED	JSI
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No. 153140604
PHASE 0003
FIGURE **D2**

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

Path: C:\Users\EVForney\Golder Associates\153140602, Ameren GW Monitoring Program 2020 - 5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2022 Annual Report\20220606_Sioux.mxd



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- Proposed SCPD - WFGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) WFGD - WET FLUE GAS DESULFURIZATION.
7.) TP-7S NOT USED IN POTENTIOMETRIC SURFACE MAP CONTOURING.

REFERENCES

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
JUNE 6, 2022 POTENTIOMETRIC SURFACE MAP

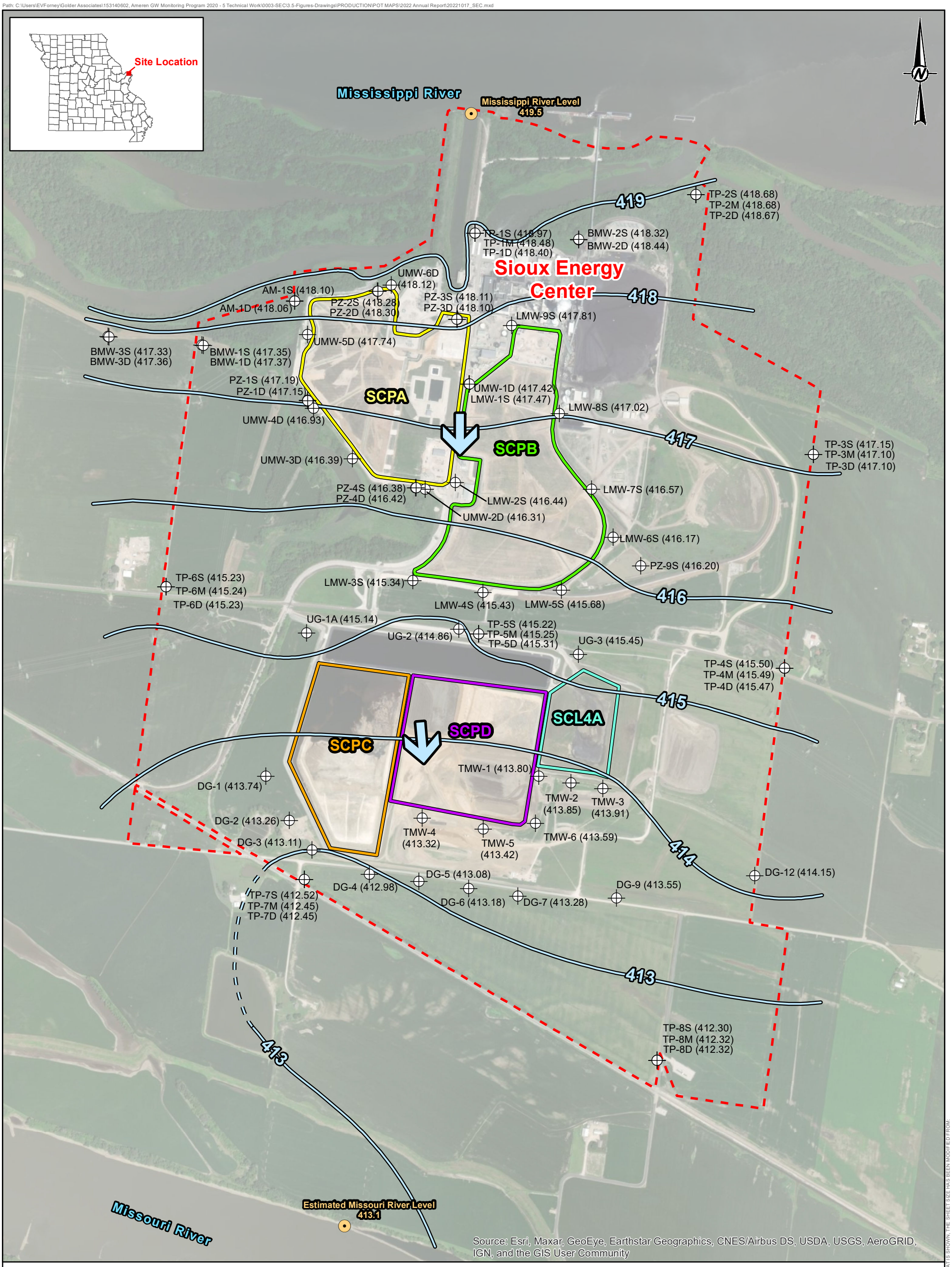
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-12-27
PREPARED	GTM
DESIGN	JSI
REVIEW	ETF
APPROVED	MNH

PROJECT No. 153140604
PHASE 0003
FIGURE **D3**

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

Path: C:\Users\EVForney\Golder Associates\153140602, Ameren GW Monitoring Program 2020 - 5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2022 Annual Report\20221017_SEC.mxd



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- Proposed SCPD - WFGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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

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

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
6.) WFGD - WET 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).

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
OCTOBER 17, 2022 POTENTIOMETRIC SURFACE MAP

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-12-27
PREPARED	ETF
DESIGN	JSI
REVIEW	RJF
APPROVED	MNH

PROJECT No. 153140604
PHASE 0003B
FIGURE **D4**

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

wsp.com