REPORT

2020 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:

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260, Ballwin, Missouri, USA 63021

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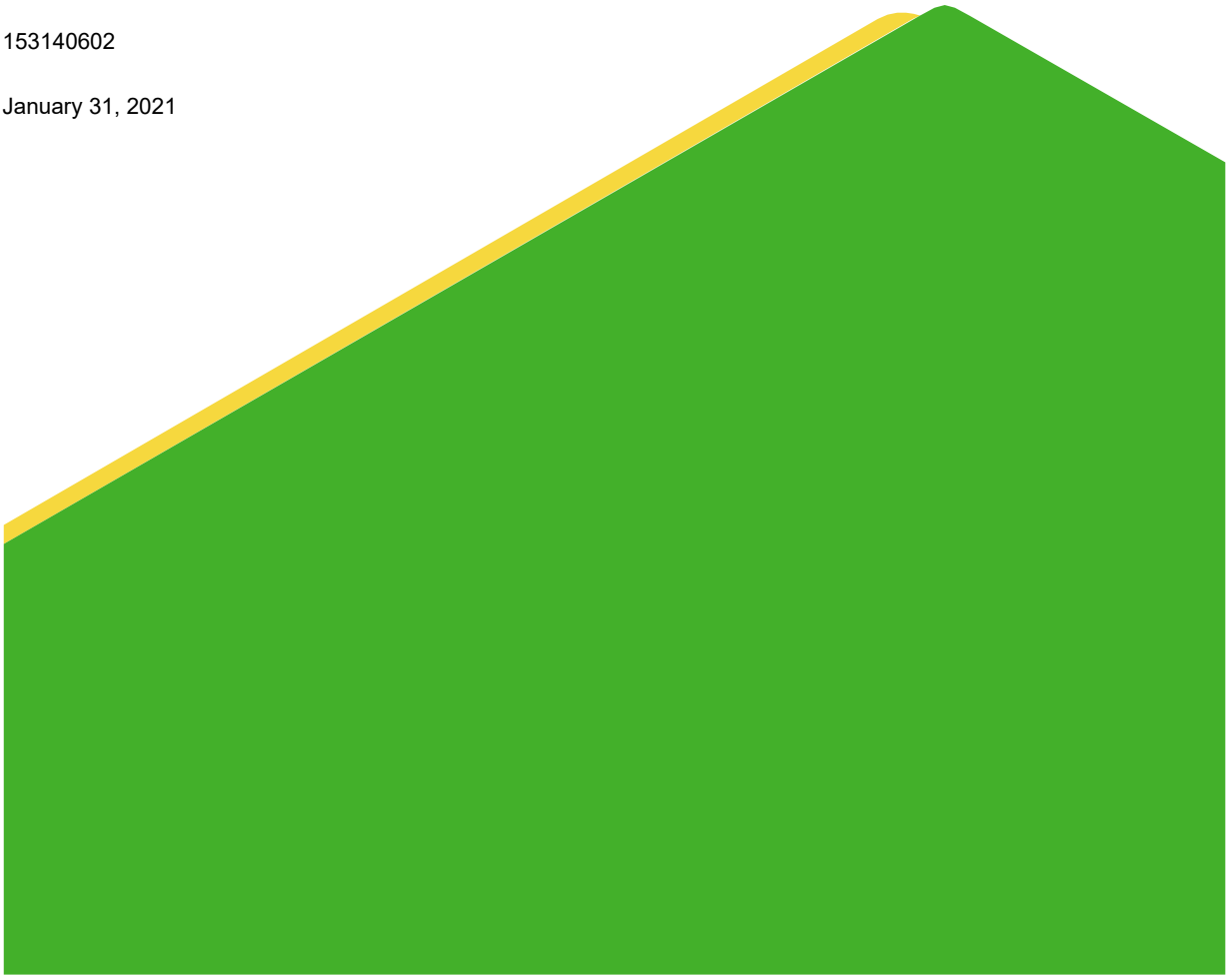
153140602

January 31, 2021



1.0 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, 2020 through December 31, 2020, including verification results related to late 2019 sampling.

Throughout 2020, 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 2020 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 2019 Sampling Event	Detection Monitoring, November 13-15, 2019	December 3, 2019	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-9S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-7S, LMW-8S, LMW-9S, **Fluoride:** LMW-8S **Sulfate:** LMW-1S, 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	February 25, 2020	May 19, 2020
	Verification Sampling, January 2-3	January 7, 2020	Detected Appendix III parameters (See Note 1)			
April 2020 Sampling Event	Detection Monitoring, April 22-23, 2020	June 10, 2020	Appendix III, Major Cations and Anions	**Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Calcium:** LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, LMW-9S **Chloride:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-7S, LMW-8S, LMW-9S **Fluoride:** LMW-1S, LMW-8S **Sulfate:** LMW-1S, 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 20, 2020	November 18, 2020
	Verification Sampling, June 16-17, 2020	July 27, 2020	Detected Appendix III parameters (See Note 1)			
November 2020 Sampling Event	Detection Monitoring, November 11-16, 2020	December 28, 2020	Appendix III, Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2021.		

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.

No new wells were installed or decommissioned in 2020, however, LMW-1S was modified from having an above-ground protective cover to a flush-mount protective cover due to onsite construction. Additionally, closure of the SCPB is scheduled to be completed in 2021. As outlined in §257.104 (Post-closure Care Requirements) of the CCR Rule, once the SCPB CCR unit is successfully closed the monitoring system and programs must be maintained for at least 30 years.

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2.0 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**. No new monitoring wells were installed or decommissioned in 2020 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.

3.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the SCPB CCR Unit in 2020. **Table 2** below provides a summary of the groundwater samples collected in 2020 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											
January 2020 Verification Sampling	-	-	-	1/2/2020	-	1/3/2020	-	-	-	-	-	Detection
April 2020 Detection Monitoring	4/22/2020	4/22/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	Detection
June 2020 Verification Sampling	-	-	6/17/2020	6/16/2020	6/16/2020	-	-	-	-	6/17/2020	-	Detection
November 2020 Detection Monitoring	11/16/2020	11/16/2020	11/11/2020	11/12/2020	11/12/2020	11/12/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	Detection
Total Number of Samples Collected	2	2	3	4	3	3	2	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.

3.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 13-15, 2019. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2019 event were not completed until 2020 and are, therefore, included in this report. Detections of Appendix III analytes triggered a verification sampling event, which was completed on January 2-3, 2020 and verified SSIs. **Table 3** summarizes the results of the statistical analysis of the November 2019 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 April 22-23, 2020, and testing was completed for all Appendix III analytes, as well as major cations and anions. Statistical analysis of the data determined SSIs. Detections of

Appendix III analytes triggered Verification Sampling, which was completed June 16-17, 2020. **Table 4** summarizes the results of the statistical analysis of the April 2020 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**. As with the November 2019 sampling event, SSIs reported for the monitoring data are not caused by the SCPB CCR Unit and an ASD for this is provided in **Appendix C**.

A Detection Monitoring sampling event was completed November 11-16, 2020, and testing was performed for all Appendix III analytes, as well as major cations and anions. Statistical analyses to evaluate for SSIs in the November 2020 data were not completed in 2020 and the results will be provided in the 2021 Annual Report. **Table 5** summarizes the results of the November 2020 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**.

3.2 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 found 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, since the alluvial aquifer is hydraulically connected to these water bodies. Groundwater in the alluvial aquifer will generally flow from the higher of the two rivers toward the lower elevation river. The SCPA Surface Impoundment and Poeling Lake also locally affect water levels and flow directions. 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 were estimated for the alluvial aquifer wells at the SEC using commercially available software. Results from this assessment indicate that while groundwater flow direction is variable, the overall net groundwater flow in the alluvial aquifer at the SEC was toward the northeast but ranged from north to south. Horizontal gradients calculated by the program range from 0.00006 to 0.001 feet/foot with an estimated net annual groundwater movement of approximately three (3) feet.

3.3 Sampling Issues

Verification sampling and a Corrective Action Sampling event for the SEC were planned to start June 1, 2020. However, from approximately June 1, 2020 to June 14, 2020 some of the monitoring wells at the SEC were not accessible or partially submerged due to the flooding of the Mississippi and Missouri Rivers which caused a delay in the planned sampling dates. Prior to collecting water levels or groundwater samples, Golder performed a post-flood monitoring well inspection and based on this evaluation, no monitoring wells were impacted by the flood.

On April 29, 2020, the above-ground protective cover for monitoring well LMW-1S was modified to a flush-mount well protector due to ongoing construction at the SEC. The Missouri Department of Natural Resources (MDNR) Well Reconstruction Registration Report and an updated well construction diagram for this modification can be found in **Appendix E.**

No additional notable sampling issues were encountered at the SCPB in 2020.

4.0 ACTIVITIES PLANNED FOR 2021

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2021. Statistical analysis of the November 2020 Detection Monitoring data will be completed in 2021 and included in the 2021 Annual Report.

Tables

Table 3
November 2019 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 2019 Detection Monitoring Event													
DATE	NA	NA	11/13/2019	11/13/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019
pH	SU	6.387-7.785	6.88	7.13	7.27	7.01	6.92	6.77	6.82	6.84	6.80	6.93	6.70
BORON, TOTAL	µg/L	118	118	80.1 J	1,270	11,200 J	961	4,290	14,900	19,300	4,830	8,590	1,640
CALCIUM, TOTAL	µg/L	168,826	143,000 J	102,000	79,400	170,000 J	165,000	180,000	266,000	292,000	208,000	153,000	189,000
CHLORIDE, TOTAL	mg/L	12.32	6.4	7.6	18.2	102	66.3	23.0	31.0	4.1	28.0	36.2	77.2
FLUORIDE, TOTAL	mg/L	0.395	0.28	0.23	0.29	0.31	0.26	0.16 J	0.39	0.21	0.21	0.83	0.27
SULFATE, TOTAL	mg/L	37.38	26.5	34.4	70.2	317	238	170	852	917	402	399	287
TOTAL DISSOLVED SOLIDS	mg/L	565	551	418	386	927	798	816	1,770	1,870	1,140	922	1,110
January 2020 Verification Sampling Event													
DATE	NA	NA				1/2/2020		1/3/2020					
pH	SU	6.387-7.785											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	168,826				193,000		208,000					
CHLORIDE, TOTAL	mg/L	12.32											
FLUORIDE, TOTAL	mg/L	0.395											
SULFATE, TOTAL	mg/L	37.38											
TOTAL DISSOLVED SOLIDS	mg/L	565											

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

Prepared By: EMS
Checked By: BTT
Reviewed By: SCP

Table 4
April 2020 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
April 2020 Detection Monitoring Event													
DATE	NA	NA	4/22/2020	4/22/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020
pH	SU	6.387-7.785	6.54	6.90	7.10	6.98	6.67	6.93	7.04	6.98	7.07	6.79	6.75
BORON, TOTAL	µg/L	118	114	95.9 J	1,030	11,100	612	2,020	17,300	19,400	4,920	9,220	1,520
CALCIUM, TOTAL	µg/L	168,826	150,000	134,000	83,300	170,000	208,000	182,000	294,000	324,000	238,000	170,000	197,000 J
CHLORIDE, TOTAL	mg/L	12.32	8.0	13.2	20.4	64.3	92.8	13.8	30.9	5.0	30.4	34.8	90.1
FLUORIDE, TOTAL	mg/L	0.395	0.37	0.43	0.44	0.41	0.25	0.23	0.37	0.20	ND	0.74	0.090 J
SULFATE, TOTAL	mg/L	37.38	27.0	29.6	106	321	148	107	1,100	996	389	300	288
TOTAL DISSOLVED SOLIDS	mg/L	565	565	472	412	862	845	729	1,900	1,900	1,120	841	999
June 2020 Verification Sampling Event													
DATE	NA	NA			6/17/2020	6/16/2020	6/16/2020					6/17/2020	
pH	SU	6.387-7.785											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	168,826					183,000					169,000	
CHLORIDE, TOTAL	mg/L	12.32											
FLUORIDE, TOTAL	mg/L	0.395			0.47	0.37							
SULFATE, TOTAL	mg/L	37.38											
TOTAL DISSOLVED SOLIDS	mg/L	565											

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 for, but was not detected above the Method Detection Limit (MDL) or the Practical Quantitation Limit (PQL) and is considered a non-detect. Values displayed as ND.
4. NA - Not applicable.
5. Prediction Limits calculated using Sanitas Software.
6. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
7. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
8. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: JSI
Checked By: BTT
Reviewed By: MNH

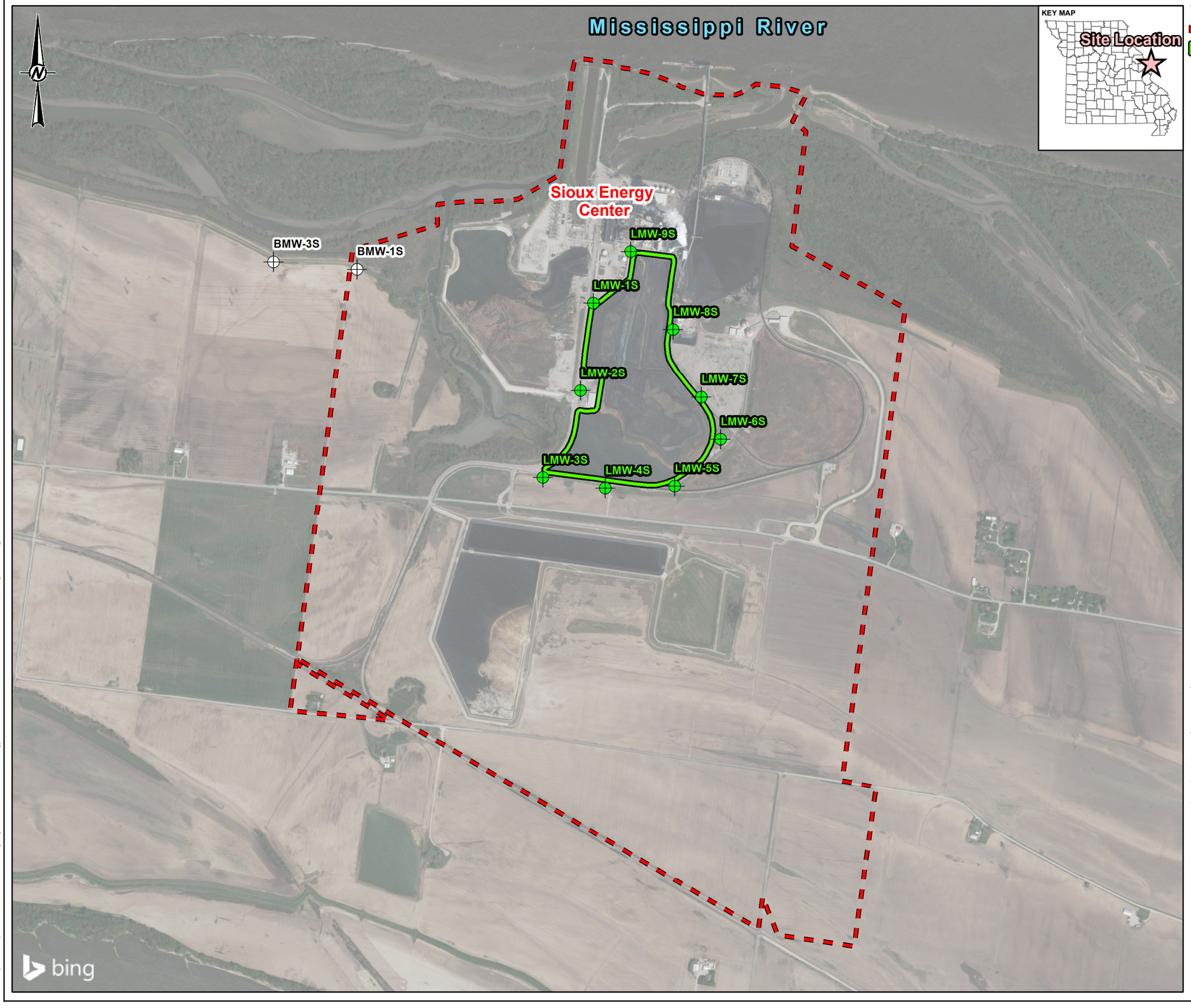
Table 5
November 2020 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2020 Detection Monitoring Event												
DATE	NA	11/16/2020	11/16/2020	11/11/2020	11/12/2020	11/12/2020	11/12/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020
pH	SU	6.96	7.07	7.23	7.10	6.89	6.94	6.86	6.75	6.71	6.57	6.84
BORON, TOTAL	µg/L	75.1 J	66.3 J	645	9,120	229	473	14,500 J	17,400	3,140	7,340	1,500 J
CALCIUM, TOTAL	µg/L	141,000	125,000	85,100	220,000	156,000 J	175,000	248,000 J	298,000	246,000	158,000	177,000
CHLORIDE, TOTAL	mg/L	7.0	11.4	23.3	135	58.2	2.4	22.5	4.0	17.6	19.1	91.6
FLUORIDE, TOTAL	mg/L	0.34	0.40	0.42	0.44	0.38	0.28	0.69	0.44	0.39	0.66	0.51
SULFATE, TOTAL	mg/L	24.8	30.6	75.1	221	33.8	36.0	792	771	349	292	277
TOTAL DISSOLVED SOLIDS	mg/L	505	455	8.5	984	625	631	1,690	1,560	1,100	763	957

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.

Prepared By: BTT
Checked By: EMS
Reviewed By: MNH

Figures



KEY MAP

LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Groundwater Monitoring Wells Used for SCPB CCR Rule Monitoring

- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well

0 1,000 2,000 3,000

Feet

NOTE(S)

1.) ALL BOUNDARIES AND LOCATIONS ARE APPROXIMATE.

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
SITE LOCATION AERIAL MAP AND MONITORING WELL LOCATIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2020-01-15
DESIGNED	JSI
PREPARED	RJF
REVIEWED	EMS
APPROVED	MNH

PROJECT NO.	CONTROL	REV.	FIGURE
153140602	1240	0	1

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APPENDIX A

Laboratory Analytical Data

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

January 07, 2020

Jeffrey Ingram
Golder Associates
13515 Barrett Parkway Drive
Suite 260
Ballwin, MO 63021

RE: Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Dear Jeffrey Ingram:
Enclosed are the analytical results for sample(s) received by the laboratory on January 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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
Tommy Goodwin, Golder Associates
Mark Haddock, Golder Associates
Eric Schneider, Golder Associates

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
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 #: KS000212018-8
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 SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60325670001	**S-LMW-2S**	Water	01/02/20 11:00	01/04/20 02:17
60325670002	**S-LMW-4S**	Water	01/03/20 13:00	01/04/20 02:17
60325670003	**S-SCPB-FB-1**	Water	01/03/20 12:20	01/04/20 02:17
60325670004	**S-SCPB-DUP-1**	Water	01/02/20 08:00	01/04/20 02:17

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60325670001	**S-LMW-2S**	EPA 200.7	LRS	1	PASI-K
60325670002	**S-LMW-4S**	EPA 200.7	LRS	1	PASI-K
60325670003	**S-SCPB-FB-1**	EPA 200.7	LRS	1	PASI-K
60325670004	**S-SCPB-DUP-1**	EPA 200.7	LRS	1	PASI-K

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Sample: S-LMW-2S **Lab ID: 60325670001** Collected: 01/02/20 11:00 Received: 01/04/20 02:17 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								
Calcium	**193000**	ug/L	200	32.4	1	01/06/20 15:00	01/07/20 12:39	7440-70-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Sample: S-LMW-4S **Lab ID: 60325670002** Collected: 01/03/20 13:00 Received: 01/04/20 02:17 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								
Calcium	**208000**	ug/L	200	32.4	1	01/06/20 15:00	01/07/20 12:42	7440-70-2	

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Sample: S-SCPB-FB-1 **Lab ID: 60325670003** Collected: 01/03/20 12:20 Received: 01/04/20 02:17 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								
Calcium	**43.9J**	ug/L	200	32.4	1	01/06/20 15:00	01/07/20 12:29	7440-70-2	B

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Sample: S-SCPB-DUP-1 **Lab ID: 60325670004** Collected: 01/02/20 08:00 Received: 01/04/20 02:17 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								
Calcium	**191000**	ug/L	200	32.4	1	01/06/20 15:00	01/07/20 12:44	7440-70-2	

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

QC Batch: 631774 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60325670001, 60325670002, 60325670003, 60325670004

METHOD BLANK: 2572597 Matrix: Water
Associated Lab Samples: 60325670001, 60325670002, 60325670003, 60325670004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	67.2J	200	32.4	01/07/20 12:16	

LABORATORY CONTROL SAMPLE: 2572598

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10800	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2572599 2572600

Parameter	Units	60325632001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	224000	10000	10000	234000	238000	96	134	70-130	2	20	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 SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60325670

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60325670001	**S-LMW-2S**	EPA 200.7	631774	EPA 200.7	631791
60325670002	**S-LMW-4S**	EPA 200.7	631774	EPA 200.7	631791
60325670003	**S-SCPB-FB-1**	EPA 200.7	631774	EPA 200.7	631791
60325670004	**S-SCPB-DUP-1**	EPA 200.7	631774	EPA 200.7	631791

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

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

WO# : 60325670

60325670

Company: Golder Associates	Billing Information:
Address: 1355 Barrett Parkway Drive Suite 260	
Report To: Jeffrey Ingram	Email To: Jeffrey_Ingram@golder.com
Copy To: RyanFeldmann@Schneider	Site Collection Info/Address:
Customer Project Name/Number: Ameren / 153140601	State: MO / County/City: Time Zone Collected: [ ] PT [ ] MT [✓] CT [ ] ET
Phone: Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Eric Schneider	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
	Field Filtered (if applicable): [ ] Yes [✓] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	1	U	Lab Sample # / Comments
S-LMW-2S	GW	G			1/2/2020	1100		1	X		001
S-LMW-4S	"	"			1/3/2020	1300		1	2		002
S-SCPB-FB-1	GW	G			1/3/2020	1220		1	X		003
S-SCPB-DUP-1	"	"			1/2/2020	—		1	X		004

Container Preservative Type

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	(Y) N NA
Custody Signatures Present	(Y) N NA
Collector Signature Present	(Y) N NA
Bottles Intact	(Y) N NA
Correct Bottles	(Y) N NA
Sufficient Volume	(Y) N NA
Samples Received on Ice	(Y) N NA
VOA - Headspace Acceptable	Y N (NA)
USDA Regulated Soils	Y N (NA)
Samples in Holding Time	(Y) N NA
Residual Chlorine Present	Y (N) NA
Cl Strips:	
Sample pH Acceptable	(Y) N NA
pH Strips:	
Sulfide Present	Y (N) NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used: Zoll

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2444571

Samples received via: FEDEX UPS Client (Courier) Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: T298
Cooler 1 Temp Upon Receipt: 1.2 oC
Cooler 1 Therm Corr. Factor: +0.0 oC
Cooler 1 Corrected Temp: 1.2 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	1/3/2020 1438		1/3 1438
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	1/3/20 1444		1/4/2020 0217
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 1

MEMORANDUM

DATE January 8, 2020 **Project No.** 153140601

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Tommy Goodwin **EMAIL Tommy_Goodwin@golder.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – DATA PACKAGE 60325670

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).

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren - Sioux - SCPB
Project Number: 153140601
Reviewer: T Goodwin
Validation Date: 1/8/2020

Laboratory: Pace Analytical - KS
SDG #: 60325670
Analytical Method (type and no.): EPA 200.7 (Metals)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-LMW-2S, 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?	x			1/2-3/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			
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			
b) Was the COC signed by both field and laboratory personnel?	x			
c) Were samples received in good condition?	x			

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

DUP-1 @ S-LMW-2S; FB-1 @ S-LMW-4S

MB: -70001-04: Ca (67.2)

FB-1: Ca (43.9)

Max Field Duplicate RPD: 1% (Limit 20%)

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-SCPB-FB-1	Calcium (Ca)	200	U	Detected in Method Blank; PQL > Result > MDL

Signature: Tommy J. Hooker Jr. Date: 1/8/2020

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

June 10, 2020

Jeffrey Ingram
Golder Associates
13515 Barrett Parkway Drive
Suite 260
Ballwin, MO 63021

RE: Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on April 24, 2020. 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

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

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 #: 200030
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

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SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60335367001	**S-LMW-3S**	Water	04/23/20 11:35	04/24/20 02:40
60335367002	**S-LMW-7S**	Water	04/23/20 12:30	04/24/20 02:40
60335367003	**S-LMW-8S**	Water	04/23/20 09:45	04/24/20 02:40
60335367004	**S-LMW-9S**	Water	04/23/20 15:25	04/24/20 02:40
60335367005	**S-LMW-DUP-1**	Water	04/23/20 08:00	04/24/20 02:40
60335367006	**S-LMW-DUP-2**	Water	04/23/20 08:00	04/24/20 02:40
60335367007	**S-LMW-FB-1**	Water	04/23/20 11:55	04/24/20 02:40
60335367008	**S-LMW-FB-2**	Water	04/23/20 16:05	04/24/20 02:40
60335364006	**S-LMW-1S**	Water	04/23/20 13:50	04/24/20 02:40
60335364007	**S-LMW-2S**	Water	04/23/20 12:30	04/24/20 02:40
60335364008	**S-LMW-4S**	Water	04/23/20 13:50	04/24/20 02:40
60335364009	**S-LMW-5S**	Water	04/23/20 10:15	04/24/20 02:40
60335364010	**S-LMW-6S**	Water	04/23/20 11:05	04/24/20 02:40
60335364013	**S-BMW-1S**	Water	04/22/20 14:55	04/24/20 02:40
60335364014	**S-BMW-3S**	Water	04/22/20 13:40	04/24/20 02:40

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60335367001	**S-LMW-3S**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335367002	**S-LMW-7S**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB, MJK	3	PASI-K
60335367003	**S-LMW-8S**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60335367004	**S-LMW-9S**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60335367005	**S-LMW-DUP-1**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335367006	**S-LMW-DUP-2**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60335367007	**S-LMW-FB-1**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60335367008	**S-LMW-FB-2**	EPA 200.7	HKC, JLH	7	PASI-K
		SM 2320B	LDB	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60335364006	**S-LMW-1S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60335364007	**S-LMW-2S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335364008	**S-LMW-4S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335364009	**S-LMW-5S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335364010	**S-LMW-6S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335364013	**S-BMW-1S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K
60335364014	**S-BMW-3S**	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR, LDB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-3S **Lab ID: 60335367001** Collected: 04/23/20 11:35 Received: 04/24/20 02:40 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	**612**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:34	7440-42-8	
Calcium	**208000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 15:50	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 15:50	7439-89-6	
Magnesium	**39100**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:34	7439-95-4	
Manganese	**27.3**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:34	7439-96-5	
Potassium	**6270**	ug/L	500	189	1	04/25/20 09:11	04/29/20 15:50	7440-09-7	
Sodium	**38400**	ug/L	500	107	1	04/25/20 09:11	04/29/20 15:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**414**	mg/L	20.0	8.4	1		04/27/20 15:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**845**	mg/L	13.3	13.3	1		04/29/20 10:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**92.8**	mg/L	5.0	1.9	5		04/28/20 11:26	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	0.075	1		04/28/20 11:11	16984-48-8	
Sulfate	**148**	mg/L	20.0	5.6	20		04/29/20 10:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-7S **Lab ID: 60335367002** Collected: 04/23/20 12:30 Received: 04/24/20 02:40 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	**4920**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:36	7440-42-8	
Calcium	**238000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 15:56	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 15:56	7439-89-6	
Magnesium	**64800**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:36	7439-95-4	
Manganese	**494**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:36	7439-96-5	
Potassium	**5530**	ug/L	500	189	1	04/25/20 09:11	04/29/20 15:56	7440-09-7	
Sodium	**39100**	ug/L	500	107	1	04/25/20 09:11	04/29/20 15:56	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**436**	mg/L	20.0	8.4	1		04/27/20 16:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1120**	mg/L	13.3	13.3	1		04/29/20 10:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**30.4**	mg/L	5.0	1.9	5		05/02/20 11:41	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/28/20 11:42	16984-48-8	
Sulfate	**389**	mg/L	50.0	13.9	50		04/30/20 11:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-8S **Lab ID: 60335367003** Collected: 04/23/20 09:45 Received: 04/24/20 02:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**9220**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:38	7440-42-8	
Calcium	**170000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 15:58	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 15:58	7439-89-6	
Magnesium	**42400**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:38	7439-95-4	
Manganese	**395**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:38	7439-96-5	
Potassium	**4520**	ug/L	500	189	1	04/25/20 09:11	04/29/20 15:58	7440-09-7	
Sodium	**60400**	ug/L	500	107	1	04/25/20 09:11	04/29/20 15:58	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**315**	mg/L	20.0	8.4	1		04/27/20 16:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**841**	mg/L	13.3	13.3	1		04/29/20 12:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**34.8**	mg/L	5.0	1.9	5		04/28/20 13:02	16887-00-6	
Fluoride	**0.74**	mg/L	0.20	0.075	1		04/28/20 13:17	16984-48-8	
Sulfate	**300**	mg/L	50.0	13.9	50		04/28/20 12:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-9S **Lab ID: 60335367004** Collected: 04/23/20 15:25 Received: 04/24/20 02:40 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	**1520**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:40	7440-42-8	
Calcium	**197000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 16:00	7440-70-2	M1
Iron	**28.1J**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 16:00	7439-89-6	
Magnesium	**63700**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:40	7439-95-4	
Manganese	**450**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:40	7439-96-5	
Potassium	**4960**	ug/L	500	189	1	04/25/20 09:11	04/29/20 16:00	7440-09-7	
Sodium	**54600**	ug/L	500	107	1	04/25/20 09:11	04/29/20 16:00	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**387**	mg/L	20.0	8.4	1		04/27/20 16:20		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**999**	mg/L	10.0	10.0	1		04/29/20 12:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**90.1**	mg/L	10.0	3.9	10		04/28/20 14:21	16887-00-6	
Fluoride	**0.090J**	mg/L	0.20	0.075	1		04/28/20 13:33	16984-48-8	
Sulfate	**288**	mg/L	50.0	13.9	50		04/28/20 15:08	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-DUP-1 **Lab ID: 60335367005** Collected: 04/23/20 08:00 Received: 04/24/20 02:40 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	**4970**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:50	7440-42-8	
Calcium	**247000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 16:06	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 16:06	7439-89-6	
Magnesium	**65700**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:50	7439-95-4	
Manganese	**507**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:50	7439-96-5	
Potassium	**5740**	ug/L	500	189	1	04/25/20 09:11	04/29/20 16:06	7440-09-7	
Sodium	**40000**	ug/L	500	107	1	04/25/20 09:11	04/29/20 16:06	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**426**	mg/L	20.0	8.4	1		04/27/20 16:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1110**	mg/L	13.3	13.3	1		04/29/20 12:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**30.9**	mg/L	5.0	1.9	5		04/29/20 11:02	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/28/20 16:28	16984-48-8	
Sulfate	**390**	mg/L	50.0	13.9	50		04/28/20 16:44	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-DUP-2 **Lab ID: 60335367006** Collected: 04/23/20 08:00 Received: 04/24/20 02:40 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	**1500**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:52	7440-42-8	
Calcium	**200000**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 16:09	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 16:09	7439-89-6	
Magnesium	**63200**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:52	7439-95-4	
Manganese	**430**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:52	7439-96-5	
Potassium	**5040**	ug/L	500	189	1	04/25/20 09:11	04/29/20 16:09	7440-09-7	
Sodium	**55000**	ug/L	500	107	1	04/25/20 09:11	04/29/20 16:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**406**	mg/L	20.0	8.4	1		04/27/20 16:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**973**	mg/L	13.3	13.3	1		04/29/20 12:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**104**	mg/L	50.0	19.4	50		04/28/20 17:15	16887-00-6	
Fluoride	**0.093J**	mg/L	0.20	0.075	1		04/28/20 16:59	16984-48-8	
Sulfate	**292**	mg/L	50.0	13.9	50		04/28/20 17:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-FB-1 **Lab ID: 60335367007** Collected: 04/23/20 11:55 Received: 04/24/20 02:40 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	**15.5J**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 13:54	7440-42-8	
Calcium	**110J**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 16:11	7440-70-2	B
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 16:11	7439-89-6	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 13:54	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 13:54	7439-96-5	
Potassium	**<189**	ug/L	500	189	1	04/25/20 09:11	04/29/20 16:11	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	04/25/20 09:11	04/29/20 16:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		04/27/20 16:47		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**14.5**	mg/L	5.0	5.0	1		04/29/20 12:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/28/20 17:31	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/28/20 17:31	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		04/28/20 17:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-FB-2 **Lab ID: 60335367008** Collected: 04/23/20 16:05 Received: 04/24/20 02:40 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	**12.9J**	ug/L	100	11.7	1	04/25/20 09:11	04/27/20 12:31	7440-42-8	
Calcium	**137J**	ug/L	200	32.4	1	04/25/20 09:11	04/29/20 16:13	7440-70-2	B
Iron	**<26.8**	ug/L	50.0	26.8	1	04/25/20 09:11	04/29/20 16:13	7439-89-6	
Magnesium	**23.4J**	ug/L	50.0	19.7	1	04/25/20 09:11	04/27/20 12:31	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	04/25/20 09:11	04/27/20 12:31	7439-96-5	
Potassium	**<189**	ug/L	500	189	1	04/25/20 09:11	04/29/20 16:13	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	04/25/20 09:11	04/29/20 16:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		04/27/20 16:50		
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		04/29/20 12:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/28/20 17:47	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/28/20 17:47	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		04/28/20 17:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-1S **Lab ID: 60335364006** Collected: 04/23/20 13:50 Received: 04/24/20 02:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Boron	**1030**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 16:40	7440-42-8	
Calcium	**83300**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 16:40	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 16:40	7439-89-6	
Magnesium	**20800**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 16:40	7439-95-4	
Manganese	**64.9**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 16:40	7439-96-5	
Potassium	**6980**	ug/L	500	189	1	04/29/20 13:20	04/30/20 16:40	7440-09-7	
Sodium	**24300**	ug/L	500	107	1	04/29/20 13:20	04/30/20 16:40	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**216**	mg/L	20.0	8.4	1		05/04/20 13:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**412**	mg/L	5.0	5.0	1		04/29/20 10:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**20.4**	mg/L	2.0	0.78	2		05/18/20 21:44	16887-00-6	
Fluoride	**0.44**	mg/L	0.20	0.075	1		05/18/20 20:31	16984-48-8	
Sulfate	**106**	mg/L	10.0	2.8	10		05/18/20 22:28	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-2S **Lab ID: 60335364007** Collected: 04/23/20 12:30 Received: 04/24/20 02:40 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	**11100**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 16:46	7440-42-8	
Calcium	**170000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 16:46	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 16:46	7439-89-6	
Magnesium	**27100**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 16:46	7439-95-4	
Manganese	**290**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 16:46	7439-96-5	
Potassium	**8640**	ug/L	500	189	1	04/29/20 13:20	04/30/20 16:46	7440-09-7	
Sodium	**65400**	ug/L	500	107	1	04/29/20 13:20	04/30/20 16:46	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**248**	mg/L	20.0	8.4	1		05/04/20 13:59		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**862**	mg/L	10.0	10.0	1		04/29/20 10:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**64.3**	mg/L	10.0	3.9	10		05/18/20 23:26	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	0.075	1		05/18/20 23:12	16984-48-8	
Sulfate	**321**	mg/L	20.0	5.6	20		05/19/20 12:36	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-4S **Lab ID: 60335364008** Collected: 04/23/20 13:50 Received: 04/24/20 02:40 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	**2020**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 16:52	7440-42-8	
Calcium	**182000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 16:52	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 16:52	7439-89-6	
Magnesium	**38800**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 16:52	7439-95-4	
Manganese	**20.7**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 16:52	7439-96-5	
Potassium	**4600**	ug/L	500	189	1	04/29/20 13:20	04/30/20 16:52	7440-09-7	
Sodium	**17600**	ug/L	500	107	1	04/29/20 13:20	04/30/20 16:52	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**501**	mg/L	20.0	8.4	1		05/04/20 14:06		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**729**	mg/L	10.0	10.0	1		04/29/20 10:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**13.8**	mg/L	1.0	0.39	1		05/19/20 00:25	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.075	1		05/19/20 00:25	16984-48-8	
Sulfate	**107**	mg/L	10.0	2.8	10		05/19/20 12:51	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-5S **Lab ID: 60335364009** Collected: 04/23/20 10:15 Received: 04/24/20 02:40 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	**17300**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 16:54	7440-42-8	
Calcium	**294000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 16:54	7440-70-2	
Iron	**82.4**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 16:54	7439-89-6	
Magnesium	**59200**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 16:54	7439-95-4	
Manganese	**1770**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 16:54	7439-96-5	
Potassium	**5070**	ug/L	500	189	1	04/29/20 13:20	04/30/20 16:54	7440-09-7	
Sodium	**188000**	ug/L	500	107	1	04/29/20 13:20	04/30/20 16:54	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**294**	mg/L	20.0	8.4	1		05/04/20 14:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1900**	mg/L	20.0	20.0	1		04/29/20 10:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**30.9**	mg/L	2.0	0.78	2		05/19/20 13:07	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.075	1		05/19/20 00:54	16984-48-8	
Sulfate	**1100**	mg/L	100	27.8	100		05/19/20 13:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-LMW-6S **Lab ID: 60335364010** Collected: 04/23/20 11:05 Received: 04/24/20 02:40 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	**19400**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 16:56	7440-42-8	
Calcium	**324000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 16:56	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 16:56	7439-89-6	
Magnesium	**82600**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 16:56	7439-95-4	
Manganese	**678**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 16:56	7439-96-5	
Potassium	**5580**	ug/L	500	189	1	04/29/20 13:20	04/30/20 16:56	7440-09-7	
Sodium	**123000**	ug/L	500	107	1	04/29/20 13:20	04/30/20 16:56	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**382**	mg/L	20.0	8.4	1		05/04/20 16:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1900**	mg/L	20.0	20.0	1		04/29/20 10:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**5.0**	mg/L	1.0	0.39	1		05/19/20 01:23	16887-00-6	
Fluoride	**0.20**	mg/L	0.20	0.075	1		05/19/20 01:23	16984-48-8	
Sulfate	**996**	mg/L	100	27.8	100		05/19/20 13:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-BMW-1S **Lab ID: 60335364013** Collected: 04/22/20 14:55 Received: 04/24/20 02:40 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	**114**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 17:01	7440-42-8	
Calcium	**150000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 17:01	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 17:01	7439-89-6	
Magnesium	**31500**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 17:01	7439-95-4	
Manganese	**434**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 17:01	7439-96-5	
Potassium	**378J**	ug/L	500	189	1	04/29/20 13:20	04/30/20 17:01	7440-09-7	
Sodium	**4980**	ug/L	500	107	1	04/29/20 13:20	04/30/20 17:01	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**438**	mg/L	20.0	8.4	1		05/01/20 15:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**565**	mg/L	10.0	10.0	1		04/28/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**8.0**	mg/L	1.0	0.39	1		05/19/20 02:22	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.075	1		05/19/20 02:22	16984-48-8	
Sulfate	**27.0**	mg/L	2.0	0.56	2		05/19/20 15:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Sample: S-BMW-3S **Lab ID: 60335364014** Collected: 04/22/20 13:40 Received: 04/24/20 02:40 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	**95.9J**	ug/L	100	11.7	1	04/29/20 13:20	04/30/20 17:03	7440-42-8	
Calcium	**134000**	ug/L	200	32.4	1	04/29/20 13:20	04/30/20 17:03	7440-70-2	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/29/20 13:20	04/30/20 17:03	7439-89-6	
Magnesium	**26000**	ug/L	50.0	19.7	1	04/29/20 13:20	04/30/20 17:03	7439-95-4	
Manganese	**318**	ug/L	5.0	0.97	1	04/29/20 13:20	04/30/20 17:03	7439-96-5	
Potassium	**490J**	ug/L	500	189	1	04/29/20 13:20	04/30/20 17:03	7440-09-7	
Sodium	**5470**	ug/L	500	107	1	04/29/20 13:20	04/30/20 17:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**395**	mg/L	20.0	8.4	1		05/01/20 15:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**472**	mg/L	10.0	10.0	1		04/29/20 09:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**13.2**	mg/L	1.0	0.39	1		05/19/20 03:20	16887-00-6	
Fluoride	**0.43**	mg/L	0.20	0.075	1		05/19/20 03:20	16984-48-8	
Sulfate	**29.6**	mg/L	2.0	0.56	2		05/19/20 15:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651249
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: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

METHOD BLANK: 2642634 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<11.7	100	11.7	04/27/20 13:03	
Calcium	ug/L	35.3J	200	32.4	04/29/20 15:39	
Iron	ug/L	<26.8	50.0	26.8	04/29/20 15:39	
Magnesium	ug/L	<19.7	50.0	19.7	04/27/20 13:03	
Manganese	ug/L	<0.97	5.0	0.97	04/27/20 13:03	
Potassium	ug/L	<189	500	189	04/29/20 15:39	
Sodium	ug/L	119J	500	107	04/29/20 15:39	

LABORATORY CONTROL SAMPLE: 2642635

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	988	99	85-115	
Calcium	ug/L	10000	10700	107	85-115	
Iron	ug/L	10000	10600	106	85-115	
Magnesium	ug/L	10000	10400	104	85-115	
Manganese	ug/L	1000	977	98	85-115	
Potassium	ug/L	10000	10500	105	85-115	
Sodium	ug/L	10000	10500	105	85-115	

MATRIX SPIKE SAMPLE: 2642636

Parameter	Units	60334936002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	ND	1000	1040	99	70-130	
Calcium	ug/L	56600	10000	68600	119	70-130	
Iron	ug/L	613	10000	11200	105	70-130	
Magnesium	ug/L	14000	10000	24300	103	70-130	
Manganese	ug/L	23.9	1000	1000	98	70-130	
Potassium	ug/L	3410	10000	14000	106	70-130	
Sodium	ug/L	20400	10000	31300	110	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2642637 2642638

Parameter	Units	60335367004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1520	1000	1000	2560	2530	104	101	70-130	1	20	
Calcium	ug/L	197000	10000	10000	214000	213000	166	158	70-130	0	20	M1
Iron	ug/L	28.1J	10000	10000	10400	10700	103	107	70-130	3	20	
Magnesium	ug/L	63700	10000	10000	75800	75000	121	114	70-130	1	20	
Manganese	ug/L	450	1000	1000	1440	1440	99	99	70-130	0	20	
Potassium	ug/L	4960	10000	10000	15800	16000	109	111	70-130	1	20	
Sodium	ug/L	54600	10000	10000	66700	66500	122	119	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651902
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: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364013, 60335364014

METHOD BLANK: 2644795 Matrix: Water
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364013, 60335364014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<11.7	100	11.7	04/30/20 16:27	
Calcium	ug/L	<32.4	200	32.4	04/30/20 16:27	
Iron	ug/L	<26.8	50.0	26.8	04/30/20 16:27	
Magnesium	ug/L	<19.7	50.0	19.7	04/30/20 16:27	
Manganese	ug/L	<0.97	5.0	0.97	04/30/20 16:27	
Potassium	ug/L	<189	500	189	04/30/20 16:27	
Sodium	ug/L	<107	500	107	04/30/20 16:27	

LABORATORY CONTROL SAMPLE: 2644796

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1000	100	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	9960	100	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	10100	101	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2644797 2644798

Parameter	Units	60335364006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1030	1000	1000	2080	2060	106	103	70-130	1	20	
Calcium	ug/L	83300	10000	10000	94300	93000	109	96	70-130	1	20	
Iron	ug/L	<26.8	10000	10000	10200	10100	102	101	70-130	1	20	
Magnesium	ug/L	20800	10000	10000	31800	31500	110	107	70-130	1	20	
Manganese	ug/L	64.9	1000	1000	1100	1090	104	102	70-130	1	20	
Potassium	ug/L	6980	10000	10000	17400	17200	104	102	70-130	1	20	
Sodium	ug/L	24300	10000	10000	34900	34500	106	102	70-130	1	20	

MATRIX SPIKE SAMPLE: 2644799

Parameter	Units	60335364014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	95.9J	1000	1100	101	70-130	
Calcium	ug/L	134000	10000	145000	109	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

MATRIX SPIKE SAMPLE: 2644799

Parameter	Units	60335364014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	<26.8	10000	9910	99	70-130	
Magnesium	ug/L	26000	10000	36400	105	70-130	
Manganese	ug/L	318	1000	1330	102	70-130	
Potassium	ug/L	490J	10000	10600	101	70-130	
Sodium	ug/L	5470	10000	15700	103	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651434
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

METHOD BLANK: 2643219 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/27/20 15:12	

LABORATORY CONTROL SAMPLE: 2643220

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

SAMPLE DUPLICATE: 2643221

Parameter	Units	60335367004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	387	401	4	10	

SAMPLE DUPLICATE: 2643222

Parameter	Units	60335367006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	406	410	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 652429
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335364013, 60335364014

METHOD BLANK: 2646871 Matrix: Water
Associated Lab Samples: 60335364013, 60335364014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	05/01/20 14:04	

LABORATORY CONTROL SAMPLE: 2646872

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	513	103	90-110	

SAMPLE DUPLICATE: 2646873

Parameter	Units	60335791001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	271	280	3	10	

SAMPLE DUPLICATE: 2646874

Parameter	Units	60335363001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	350	345	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 652555 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009

METHOD BLANK: 2647465 Matrix: Water
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	05/04/20 11:35	

LABORATORY CONTROL SAMPLE: 2647466

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	493	99	90-110	

SAMPLE DUPLICATE: 2647467

Parameter	Units	60335395014 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	990	1110	12	10	D6

SAMPLE DUPLICATE: 2647468

Parameter	Units	60335364006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	216	224	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 652683
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335364010

METHOD BLANK: 2647739 Matrix: Water
Associated Lab Samples: 60335364010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	05/04/20 16:44	

LABORATORY CONTROL SAMPLE: 2647740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	503	101	90-110	

SAMPLE DUPLICATE: 2647741

Parameter	Units	60335364010 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	382	400	5	10	

SAMPLE DUPLICATE: 2647742

Parameter	Units	60335416009 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	616	650	5	10	

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651545
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335364013

METHOD BLANK: 2643651 Matrix: Water
Associated Lab Samples: 60335364013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/28/20 14:10	

LABORATORY CONTROL SAMPLE: 2643652

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	995	100	80-120	

SAMPLE DUPLICATE: 2643653

Parameter	Units	60335395021 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	178	178	0	10	

SAMPLE DUPLICATE: 2643654

Parameter	Units	60335247005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	213	216	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
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651780 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364014, 60335367001, 60335367002

METHOD BLANK: 2644351 Matrix: Water
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364014, 60335367001, 60335367002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/29/20 09:57	

LABORATORY CONTROL SAMPLE: 2644352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	993	99	80-120	

SAMPLE DUPLICATE: 2644353

Parameter	Units	60335364014 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	472	471	0	10	

SAMPLE DUPLICATE: 2644354

Parameter	Units	60335364006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	412	420	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651891 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

METHOD BLANK: 2644771 Matrix: Water
Associated Lab Samples: 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/29/20 12:51	

LABORATORY CONTROL SAMPLE: 2644772

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	982	98	80-120	

SAMPLE DUPLICATE: 2644773

Parameter	Units	60335367004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	999	1030	3	10	

SAMPLE DUPLICATE: 2644774

Parameter	Units	60335387005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1590	1630	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 651570
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: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

METHOD BLANK: 2643710 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/28/20 07:11	
Fluoride	mg/L	<0.075	0.20	0.075	04/28/20 07:11	
Sulfate	mg/L	<0.28	1.0	0.28	04/28/20 07:11	

METHOD BLANK: 2644810 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.39J	1.0	0.39	04/23/20 08:15	
Fluoride	mg/L	<0.075	0.20	0.075	04/23/20 08:15	
Sulfate	mg/L	<0.28	1.0	0.28	04/23/20 08:15	

METHOD BLANK: 2645671 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/29/20 07:26	
Fluoride	mg/L	<0.075	0.20	0.075	04/29/20 07:26	
Sulfate	mg/L	<0.28	1.0	0.28	04/29/20 07:26	

METHOD BLANK: 2646492 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.44J	1.0	0.39	04/30/20 11:42	
Fluoride	mg/L	<0.075	0.20	0.075	04/30/20 11:42	
Sulfate	mg/L	<0.28	1.0	0.28	04/30/20 11:42	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

METHOD BLANK: 2647701 Matrix: Water
Associated Lab Samples: 60335367001, 60335367002, 60335367003, 60335367004, 60335367005, 60335367006, 60335367007, 60335367008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.44J	1.0	0.39	05/01/20 23:49	
Fluoride	mg/L	<0.075	0.20	0.075	05/01/20 23:49	
Sulfate	mg/L	<0.28	1.0	0.28	05/01/20 23:49	

LABORATORY CONTROL SAMPLE: 2643711

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	2.4	96	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

LABORATORY CONTROL SAMPLE: 2644811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	97	90-110	
Fluoride	mg/L	2.5	2.3	91	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 2645672

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	90	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

LABORATORY CONTROL SAMPLE: 2646493

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	2.7	108	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

LABORATORY CONTROL SAMPLE: 2647702

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	2.7	109	90-110	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

LABORATORY CONTROL SAMPLE: 2647702

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2643712 2643713

Parameter	Units	60335367004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	90.1	50	50	149	146	118	113	80-120	2	15	
Fluoride	mg/L	0.090J	2.5	2.5	2.1	2.2	80	83	80-120	3	15	
Sulfate	mg/L	288	250	250	571	535	113	99	80-120	7	15	

MATRIX SPIKE SAMPLE: 2643714

Parameter	Units	60335040001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	270	250	521	100	80-120	
Fluoride	mg/L	ND	125	122	95	80-120	
Sulfate	mg/L	880	250	1120	96	80-120	E

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

QC Batch: 655383
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: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364013, 60335364014

METHOD BLANK: 2658521 Matrix: Water
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364013, 60335364014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	05/18/20 11:43	
Fluoride	mg/L	<0.075	0.20	0.075	05/18/20 11:43	
Sulfate	mg/L	<0.28	1.0	0.28	05/18/20 11:43	

METHOD BLANK: 2659286 Matrix: Water
Associated Lab Samples: 60335364006, 60335364007, 60335364008, 60335364009, 60335364010, 60335364013, 60335364014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	05/19/20 09:16	
Fluoride	mg/L	<0.075	0.20	0.075	05/19/20 09:16	
Sulfate	mg/L	<0.28	1.0	0.28	05/19/20 09:16	

LABORATORY CONTROL SAMPLE: 2658522

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	101	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	5.4	108	90-110	

LABORATORY CONTROL SAMPLE: 2659287

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	2.3	93	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE SAMPLE: 2658523

Parameter	Units	60335416011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5.8	250	963	383	80-120	M1
Fluoride	mg/L	0.50	125	139	111	80-120	
Sulfate	mg/L	8.8	250	359	140	80-120	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2658524 2658525

Parameter	Units	60335364006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.4	10	10	31.0	31.8	106	114	80-120	3	15	
Fluoride	mg/L	0.44	2.5	2.5	2.8	2.9	95	97	80-120	2	15	
Sulfate	mg/L	106	50	50	153	160	95	110	80-120	5	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

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.

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60335364006	S-LMW-1S	EPA 200.7	651902	EPA 200.7	651984
60335364007	S-LMW-2S	EPA 200.7	651902	EPA 200.7	651984
60335364008	S-LMW-4S	EPA 200.7	651902	EPA 200.7	651984
60335364009	S-LMW-5S	EPA 200.7	651902	EPA 200.7	651984
60335364010	S-LMW-6S	EPA 200.7	651902	EPA 200.7	651984
60335367001	S-LMW-3S	EPA 200.7	651249	EPA 200.7	651259
60335367002	S-LMW-7S	EPA 200.7	651249	EPA 200.7	651259
60335367003	S-LMW-8S	EPA 200.7	651249	EPA 200.7	651259
60335367004	S-LMW-9S	EPA 200.7	651249	EPA 200.7	651259
60335367005	S-LMW-DUP-1	EPA 200.7	651249	EPA 200.7	651259
60335367006	S-LMW-DUP-2	EPA 200.7	651249	EPA 200.7	651259
60335367007	S-LMW-FB-1	EPA 200.7	651249	EPA 200.7	651259
60335367008	S-LMW-FB-2	EPA 200.7	651249	EPA 200.7	651259
60335364013	S-BMW-1S	EPA 200.7	651902	EPA 200.7	651984
60335364014	S-BMW-3S	EPA 200.7	651902	EPA 200.7	651984
60335364006	S-LMW-1S	SM 2320B	652555		
60335364007	S-LMW-2S	SM 2320B	652555		
60335364008	S-LMW-4S	SM 2320B	652555		
60335364009	S-LMW-5S	SM 2320B	652555		
60335364010	S-LMW-6S	SM 2320B	652683		
60335367001	S-LMW-3S	SM 2320B	651434		
60335367002	S-LMW-7S	SM 2320B	651434		
60335367003	S-LMW-8S	SM 2320B	651434		
60335367004	S-LMW-9S	SM 2320B	651434		
60335367005	S-LMW-DUP-1	SM 2320B	651434		
60335367006	S-LMW-DUP-2	SM 2320B	651434		
60335367007	S-LMW-FB-1	SM 2320B	651434		
60335367008	S-LMW-FB-2	SM 2320B	651434		
60335364013	S-BMW-1S	SM 2320B	652429		
60335364014	S-BMW-3S	SM 2320B	652429		
60335364006	S-LMW-1S	SM 2540C	651780		
60335364007	S-LMW-2S	SM 2540C	651780		
60335364008	S-LMW-4S	SM 2540C	651780		
60335364009	S-LMW-5S	SM 2540C	651780		
60335364010	S-LMW-6S	SM 2540C	651780		
60335367001	S-LMW-3S	SM 2540C	651780		
60335367002	S-LMW-7S	SM 2540C	651780		
60335367003	S-LMW-8S	SM 2540C	651891		
60335367004	S-LMW-9S	SM 2540C	651891		
60335367005	S-LMW-DUP-1	SM 2540C	651891		
60335367006	S-LMW-DUP-2	SM 2540C	651891		
60335367007	S-LMW-FB-1	SM 2540C	651891		
60335367008	S-LMW-FB-2	SM 2540C	651891		
60335364013	S-BMW-1S	SM 2540C	651545		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR SCPB
Pace Project No.: 60335367

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60335364014	**S-BMW-3S**	SM 2540C	651780		
60335364006	**S-LMW-1S**	EPA 300.0	655383		
60335364007	**S-LMW-2S**	EPA 300.0	655383		
60335364008	**S-LMW-4S**	EPA 300.0	655383		
60335364009	**S-LMW-5S**	EPA 300.0	655383		
60335364010	**S-LMW-6S**	EPA 300.0	655383		
60335367001	**S-LMW-3S**	EPA 300.0	651570		
60335367002	**S-LMW-7S**	EPA 300.0	651570		
60335367003	**S-LMW-8S**	EPA 300.0	651570		
60335367004	**S-LMW-9S**	EPA 300.0	651570		
60335367005	**S-LMW-DUP-1**	EPA 300.0	651570		
60335367006	**S-LMW-DUP-2**	EPA 300.0	651570		
60335367007	**S-LMW-FB-1**	EPA 300.0	651570		
60335367008	**S-LMW-FB-2**	EPA 300.0	651570		
60335364013	**S-BMW-1S**	EPA 300.0	655383		
60335364014	**S-BMW-3S**	EPA 300.0	655383		

Pace Analytical

Sample Condition Upon Receipt

WO# : 60335367

60335367

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 ☑ zpk

Thermometer Used: T-296 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.0, 18.2 Corr. Factor +0.1 Corrected 2.1, 18.3

Date and initials of person examining contents: 4/24/20

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? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # 603173	☑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 _____

4/24/20

Project Manager Review: _____ Date _____

Jami Church

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
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140602.0003B

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates Inc
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285, line 3

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	Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N		60355367
1	S-LMW-1S	WT	G			4/23/20	1350		2	1		1							X	X	X	X		
2	S-LMW-2S	WT	G				1230																	
3	S-LMW-3S	WT	G				1135																	
4	S-LMW-4S	WT	G				1350																	
5	S-LMW-5S	WT	G				1015																	
6	S-LMW-6S	WT	G				1105																	
7	S-LMW-7S	WT	G				1230																	
8	S-LMW-8S	WT	G				0945																	
9	S-LMW-9S	WT	G			⊥	1525																	
10	S-BMW-1S	WT	G			4/22/20	1455																	
11	S-BMW-2S (3)	WT	G			⊥	1340																	
12	S-LMW-DUP-1	WT	G			4/23/20	—		⊥	⊥		⊥							⊥	⊥	⊥	⊥		

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)
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Golder	4/23/20	1800	EBrackett/Pace	4/24/20	0240	1.6	Y	Y	Y
							0.7	↓	↓	↓

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 04/23/20

*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.

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
www.pacelabs.com

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
Purchase Order No.:	COC #9
Project Name:	Ameren Sioux Energy Center SCPB
Project Number:	153140602.0003B

Section C Invoice Information:

Attention:	
Company Name:	Golder Associates Inc
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285, line 3

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	Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N		60353567
1	S-LMW-DUP-2	WT	G			4/23/20	—		2	1									X	X	X	X		
2	S-LMW-FB-1	WT	G				1155																	
3	S-LMW-FB-2	WT	G				1605																	
4	S-LMW-MS-1	WT	G				1525																	S-LMW-95
5	S-LMW-MSD-1	WT	G				1525																	S-LMW-95
6		WT	G																					
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: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B		4/23/20	1800	EBrackett IPace	4/24/20	0340	1.6	Y	Y	Y
							0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnell

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/23/20

*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 1, 2020 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth **EMAIL AMuehlfarth@golder.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPB – DETECTION MONITORING AND ASSESSMENT MONITORING - DATA PACKAGE 60335367

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 non-detects (U).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J).
- 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).

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates Inc.
Project Manager: J. Ingram
Project Name: Ameren - SEC - SCPB
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 06/29/2020

Laboratory: Pace Analytical
SDG #: 60335367
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-9S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S, S-LMW-2S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			04/22 - 04/23/2020
b) Sampling team indicated?	x			
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			S-LMW-DUP-1 @ S-LMW-7S S-LMW-DUP-2 @ S-LMW-9S
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
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			

Comments/Notes:

Chloride and Sulfate were diluted in several samples, no qualification necessary.

MB: 2642634: Calcium (35.3 J), Sodium (119 J), associated with samples -67001 through -67008

2644810: Chloride (0.39 J), associated with samples -67001 through -67008, detections in samples > RL or non-detect, no qualification necessary.

2646492: Chloride (0.44 J), associated with samples -67001 through -67008, based on batch run times, no samples were analyzed directly following this MB, no qualification necessary

2647701: Chloride (0.44 J), associated with samples -67001 through -67008, detection in sample > RL, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

FB: S-LMW-FB-1 @ S-LMW-3S: Boron (15.5 J), Calcium (110 J), TDS (14.5), no qualification necessary, sample results > 10x blank results

S-LMW-FB-2 @ S-LMW-9S: Boron (12.9 J), Calcium (137 J), Magnesium (23.4 J), TDS (5.5) no qualification necessary, sample results > 10x blank results

DUP: S-LMW-DUP-2: Iron was detected in the sample and non-detect in the DUP.

Lab Duplicates: 2647467: RPD exceeded limit (>10%) for Alkalinity, associated with sample 60335395014 (unrelated sample).

MS/MSD: 2642637, 2642638: MS/MSD % recovery high for Calcium, associated with sample 60335367004

2658523: MS % recovery high for Chloride, Sulfate, associated with sample 60335416011 (unrelated sample).

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-FB-1	Calcium	200	U	Detected in the Method Blank
S-LMW-FB-2	Calcium	200	U	"
S-LMW-9S	Iron	28.1	J	Detected in sample, non-detect in DUP
S-LMW-DUP-2	Iron	26.8	UJ	"
S-LMW-9S	Calcium	197000	J	MS/MSD % rec high

Signature: Ann Muehlfarth Date: 06/29/2020

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

July 27, 2020

Jeffrey Ingram
Golder Associates
13515 Barrett Parkway Drive
Suite 260
Ballwin, MO 63021

RE: Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between June 17, 2020 and June 19, 2020. 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

Pace Analytical Services, LLC
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(913)599-5665

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

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 #: 200030
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
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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60340207001	**S-LMW-3S**	Water	06/16/20 13:37	06/17/20 04:48
60340207002	**S-LMW-8S**	Water	06/17/20 13:15	06/19/20 04:22
60340207003	**S-LMW-FB-1**	Water	06/17/20 13:27	06/19/20 04:22
60340207004	**S-LMW-DUP-1**	Water	06/17/20 08:00	06/19/20 04:22
60340199018	**S-LMW-1S**	Water	06/17/20 15:55	06/19/20 04:22
60340199003	**S-LMW-2S**	Water	06/16/20 14:32	06/17/20 04:48

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60340207001	**S-LMW-3S**	EPA 200.7	TDS	1	PASI-K
60340207002	**S-LMW-8S**	EPA 200.7	JDE	1	PASI-K
60340207003	**S-LMW-FB-1**	EPA 200.7	JDE	1	PASI-K
60340207004	**S-LMW-DUP-1**	EPA 200.7	JDE	1	PASI-K
60340199018	**S-LMW-1S**	EPA 300.0	JWR	1	PASI-K
60340199003	**S-LMW-2S**	EPA 300.0	JWR	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-3S **Lab ID: 60340207001** Collected: 06/16/20 13:37 Received: 06/17/20 04:48 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								
Calcium	**183000**	ug/L	200	32.4	1	06/23/20 14:59	06/24/20 12:58	7440-70-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-8S **Lab ID: 60340207002** Collected: 06/17/20 13:15 Received: 06/19/20 04:22 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**169000**	ug/L	200	32.4	1	07/06/20 09:33	07/07/20 11:50	7440-70-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-FB-1 **Lab ID: 60340207003** Collected: 06/17/20 13:27 Received: 06/19/20 04:22 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**<32.4**	ug/L	200	32.4	1	07/06/20 09:33	07/07/20 11:53	7440-70-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Lenexa, KS 66219
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ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-DUP-1 **Lab ID: 60340207004** Collected: 06/17/20 08:00 Received: 06/19/20 04:22 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Calcium	**175000**	ug/L	200	32.4	1	07/06/20 09:33	07/07/20 12:00	7440-70-2	

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-1S **Lab ID: 60340199018** Collected: 06/17/20 15:55 Received: 06/19/20 04:22 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	**0.47**	mg/L	0.20	0.075	1		06/26/20 20:26	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Sample: S-LMW-2S **Lab ID: 60340199003** Collected: 06/16/20 14:32 Received: 06/17/20 04:48 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	**0.37**	mg/L	0.20	0.075	1		06/19/20 02:10	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 SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

QC Batch: 661532
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: 60340207001

METHOD BLANK: 2681834 Matrix: Water
Associated Lab Samples: 60340207001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	39.1J	200	32.4	06/24/20 12:31	

LABORATORY CONTROL SAMPLE: 2681835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9880	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2681836 2681837

Parameter	Units	60340207001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	183000	10000	10000	195000	191000	121	85	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 SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

QC Batch: 663473
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: 60340207002, 60340207003, 60340207004

METHOD BLANK: 2689160 Matrix: Water
Associated Lab Samples: 60340207002, 60340207003, 60340207004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	<32.4	200	32.4	07/07/20 11:33	

LABORATORY CONTROL SAMPLE: 2689161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2689162 2689163

Parameter	Units	60340207002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	169000	10000	10000	181000	180000	120	114	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 SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

QC Batch: 660972
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: 60340199003

METHOD BLANK: 2679501 Matrix: Water
Associated Lab Samples: 60340199003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	06/18/20 23:01	

METHOD BLANK: 2681640 Matrix: Water
Associated Lab Samples: 60340199003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	06/19/20 10:06	

LABORATORY CONTROL SAMPLE: 2679502

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	101	90-110	

LABORATORY CONTROL SAMPLE: 2681641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.3	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2679503 2679504

Parameter	Units	60340347001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.098J	2.5	2.5	2.4	2.5	93	95	80-120	2	15	

MATRIX SPIKE SAMPLE: 2679505

Parameter	Units	60340199005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.49	2.5	3.1	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

QC Batch: 662352
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: 60340199018

METHOD BLANK: 2685059 Matrix: Water
Associated Lab Samples: 60340199018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	06/26/20 09:29	

METHOD BLANK: 2687009 Matrix: Water
Associated Lab Samples: 60340199018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	06/29/20 09:31	

METHOD BLANK: 2687769 Matrix: Water
Associated Lab Samples: 60340199018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	06/30/20 09:46	

LABORATORY CONTROL SAMPLE: 2685060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	99	90-110	

LABORATORY CONTROL SAMPLE: 2687010

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	95	90-110	

LABORATORY CONTROL SAMPLE: 2687770

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	94	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 SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

MATRIX SPIKE SAMPLE: 2685063

Parameter	Units	60340912004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	25	26.0	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2685075 2685076

Parameter	Units	60340906001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	125	125	124	126	95	97	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

QUALIFIERS

Project: AMEREN SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

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.

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 SIOUX ENERGY SCPB VS
Pace Project No.: 60340207

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60340207001	**S-LMW-3S**	EPA 200.7	661532	EPA 200.7	661748
60340207002	**S-LMW-8S**	EPA 200.7	663473	EPA 200.7	663590
60340207003	**S-LMW-FB-1**	EPA 200.7	663473	EPA 200.7	663590
60340207004	**S-LMW-DUP-1**	EPA 200.7	663473	EPA 200.7	663590
60340199003	**S-LMW-2S**	EPA 300.0	660972		
60340199018	**S-LMW-1S**	EPA 300.0	662352		

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Sample Condition Upon Receipt

WO# : 60340207

60340207

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 ☒ Zplc

Thermometer Used: T295 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 0.8 Corr. Factor +0.4 Corrected 1.2

Date and initials of person examining contents: 6.17.2020 K

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# 603296	☒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: Jami Church Date: 6/17/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Jeffrey Ingram	Attention:	
Address:	13515 Barrett Parkway Drive, Ste 260	Copy To:	Ryan Feldmann/Eric Schneider	Company Name:	
	Ballwin, MO 63021			Address:	
Email To:	jeffrey_ingram@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 636-724-9191	Fax: 636-724-9323	Project Name:	Ameren SCPB YS	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153140602	Pace Profile #:	9285

REGULATORY AGENCY: NPDES / GROUND WATER (circled) / DRINKING WATER / UST / RCRA / OTHER

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; OT; TS

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	200.7 Calcium	Fluoride	Sulfate	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-3S	WT	G			6/16/20	1537		1			1							1					
2	S-LMW-2S	WT	G			↓	1432		1	1										1				
3	S-LMW-MS-1	WT	G			6/16/20	1337		2	1		1							1	1				S-LMW-2S-MS-1
4	S-LMW-MSD-1	WT	G			↓	1337		↓	↓		↓							↓	↓				S-LMW-2S-MSD-1
5		WT	G																					
6		WT	G																					
7		WT	G																					
8		WT	G																					
9		WT	G																					
10		WT	G																					
11		WT	G																					
12		WT	G																					

Pace Project No.: 60350207 / 60340207 (corrected) — 6-17-20

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Brendan Talbert	06/16/20	1600	Angela Menna	6/16	16:20				
	Angela Menna	6/16	16:20	[illegible] / Pace	6-17-20	0445	1.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 06/16/20

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Sample Condition Upon Receipt

WO# : 60340207

60340207

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 ☒ ZIPLOC

Thermometer Used: T200 Type of Ice: (Wet) Blue None

Cooler Temperature (°C): As-read 0.9 Corr. Factor +0.1 Corrected 1.0

Date and initials of person examining contents: 06/19/2020 LK

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? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603296	☒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: Jami Church 6/22/20 Date: _____

Pace Analytical

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:	Section B Required Project Information:	Section C Invoice Information:
Company: Golder Associates	Report To: Jeffrey Ingram	Attention:
Address: 13515 Barrett Parkway Drive, Ste 260	Copy To: Ryan Feldmann/Eric Schneider	Company Name:
Ballwin, MO 63021		Address:
Email To: jeffrey_ingram@golder.com	Purchase Order No.:	Pace Quote Reference:
Phone: 636-724-9191 Fax: 636-724-9323	Project Name: Ameren SCPB-VS	Pace Project Manager: Jamie Church
Requested Due Date/TAT: Standard	Project Number: 53140602	Pace Profile #: 9285

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER UST RCRA OTHER

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

ITEM #	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; WIPE WP; AIR AR; TISSUE TS; OTHER OT)	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: 200.7 Calcium	Fluoride	Sulfate	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-BS		WT	G			6/17/20	1315		1			1						Y	1						40034202-7
2	S-LMW-FB-1		WT	G			1	1327		1			1						N							
3	S-LMW-DUP-1		WT	G			1	—		1			1						N	1						
4			WT	G															N							
5			WT	G															N							
6			WT	G															N							
7			WT	G															N							
8			WT	G															N							
9			WT	G															N							
10			WT	G															N							
11			WT	G															N							
12			WT	G															N							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[illegible]/Golder	6/18/20	1320	Angela Meyer	6/18/20	1335				
	Angela Meyer	6/18/20	1335	MKeiver/Pace	6/19/20	0402	1.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 06/18/20

MEMORANDUM

DATE July 27, 2020 **Project No.** 153140602

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 60340207

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

- None.

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates Inc.
Project Manager: J. Ingram
Project Name: Ameren - SEC - SCPB
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 07/27/2020

Laboratory: Pace Analytical Services, LLC
SDG #: 60340207
Analytical Method (type and no.): EPA 200.7 (Total Metals); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names S-LMW-3S, S-LMW-8S, S-LMW-FB-1, S-LMW-DUP-1, S-LMW-1S, S-LMW-2S

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			06/16/2020 - 06/17/2020
b) Sampling team indicated?	x			
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		
g) Were any matrix problems noted?		x		

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were analytes detected in the method blank(s)?	x			See Notes
b) Were analytes detected in the field blank(s)?		x		S-LMW-FB-1 @ S-LMW-8S
c) Were analytes detected in the equipment blank(s)?			x	
d) Were analytes detected in the trip blank(s)?			x	

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

Duplicates	**YES**	**NO**	**NA**	**COMMENTS**
a) Were field duplicates collected (note original and duplicate sample names)?				S-LMW-DUP-1 @ S-LMW-8S
	x			
b) Were field dup. precision criteria met (note RPD)?	x			Max RPD: 3.5% (<20%)
c) Were lab duplicates analyzed (note original and duplicate samples)?				
		x		
d) Were lab dup. precision criteria met (note RPD)?			x	

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

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

Comments/Notes:

MB: 2681834: Calcium (39.1 J), associated with sample -07001, detections in sample > reporting limit, no qualification necessary

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Ann Muhlfarth _____ Date: 07/27/2020

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

December 28, 2020

Jeffrey Ingram
Golder Associates
13515 Barrett Parkway Drive
Suite 260
Ballwin, MO 63021

RE: Project: AMEREN SCPB
Pace Project No.: 60354371

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between November 13, 2020 and November 18, 2020. 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

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

CERTIFICATIONS

Project: AMEREN SCPB
Pace Project No.: 60354371

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 #: 200030
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 SCPB
Pace Project No.: 60354371

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60354371001	**S-LMW-3S**	Water	11/12/20 13:20	11/13/20 03:54
60354371002	**S-LMW-7S**	Water	11/11/20 13:35	11/13/20 03:54
60354371003	**S-LMW-8S**	Water	11/11/20 12:45	11/13/20 03:54
60354371004	**S-LMW-9S**	Water	11/11/20 12:00	11/13/20 03:54
60354371005	**S-LMW-DUP-1**	Water	11/11/20 08:00	11/13/20 03:54
60354371006	**S-LMW-DUP-2**	Water	11/11/20 08:00	11/13/20 03:54
60354371007	**S-LMW-FB-1**	Water	11/11/20 12:10	11/13/20 03:54
60354371008	**S-LMW-FB-2**	Water	11/11/20 13:50	11/13/20 03:54
60354369001	**S-LMW-1S**	Water	11/11/20 11:05	11/13/20 03:54
60354369002	**S-LMW-2S**	Water	11/12/20 14:15	11/13/20 03:54
60354369003	**S-LMW-4S**	Water	11/12/20 12:20	11/13/20 03:54
60354369004	**S-LMW-5S**	Water	11/11/20 15:20	11/13/20 03:54
60354369005	**S-LMW-6S**	Water	11/11/20 14:30	11/13/20 03:54
60354369018	**S-BMW-1S**	Water	11/16/20 14:50	11/18/20 04:15
60354369011	**S-BMW-3S**	Water	11/16/20 12:20	11/18/20 04:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60354371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60354371001	**S-LMW-3S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371002	**S-LMW-7S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371003	**S-LMW-8S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371004	**S-LMW-9S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371005	**S-LMW-DUP-1**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371006	**S-LMW-DUP-2**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2, LDB	3	PASI-K
60354371007	**S-LMW-FB-1**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354371008	**S-LMW-FB-2**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60354369001	**S-LMW-1S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369002	**S-LMW-2S**	EPA 200.7	HKC	7	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN SCPB
Pace Project No.: 60354371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369003	**S-LMW-4S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369004	**S-LMW-5S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369005	**S-LMW-6S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369018	**S-BMW-1S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60354369011	**S-BMW-3S**	EPA 200.7	HKC	7	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-3S **Lab ID: 60354371001** Collected: 11/12/20 13:20 Received: 11/13/20 03:54 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	**229**	ug/L	100	11.7	1	11/25/20 11:25	12/01/20 17:51	7440-42-8	
Calcium	**156000**	ug/L	200	32.4	1	11/25/20 11:25	12/01/20 17:51	7440-70-2	M1
Iron	**<26.8**	ug/L	50.0	26.8	1	11/25/20 11:25	12/01/20 17:51	7439-89-6	
Magnesium	**30200**	ug/L	50.0	19.7	1	11/25/20 11:25	12/01/20 17:51	7439-95-4	M1
Manganese	**62.4**	ug/L	5.0	0.97	1	11/25/20 11:25	12/01/20 17:51	7439-96-5	
Potassium	**4890**	ug/L	500	189	1	11/25/20 11:25	12/01/20 17:51	7440-09-7	
Sodium	**17200**	ug/L	500	107	1	11/25/20 11:25	12/01/20 17:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**448**	mg/L	20.0	8.4	1		11/19/20 10:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**625**	mg/L	10.0	10.0	1		11/17/20 16:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**58.2**	mg/L	5.0	1.8	5		11/28/20 11:49	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.085	1		11/28/20 11:02	16984-48-8	
Sulfate	**33.8**	mg/L	5.0	2.1	5		11/28/20 11:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-7S **Lab ID: 60354371002** Collected: 11/11/20 13:35 Received: 11/13/20 03:54 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	**3140**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 15:47	7440-42-8	
Calcium	**246000**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 15:47	7440-70-2	
Iron	**38.4J**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 15:47	7439-89-6	
Magnesium	**67600**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 15:47	7439-95-4	
Manganese	**735**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 15:47	7439-96-5	
Potassium	**4990**	ug/L	500	189	1	11/25/20 11:25	11/30/20 15:47	7440-09-7	
Sodium	**28400**	ug/L	500	107	1	11/25/20 11:25	11/30/20 15:47	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**495**	mg/L	20.0	8.4	1		11/18/20 12:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1100**	mg/L	13.3	13.3	1		11/17/20 10:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**17.6**	mg/L	1.0	0.36	1		11/28/20 13:56	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	0.085	1		11/28/20 13:56	16984-48-8	
Sulfate	**349**	mg/L	50.0	21.0	50		11/28/20 14:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-8S **Lab ID: 60354371003** Collected: 11/11/20 12:45 Received: 11/13/20 03:54 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	**7340**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 15:50	7440-42-8	
Calcium	**158000**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 15:50	7440-70-2	
Iron	**47.5J**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 15:50	7439-89-6	
Magnesium	**40600**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 15:50	7439-95-4	
Manganese	**517**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 15:50	7439-96-5	
Potassium	**3800**	ug/L	500	189	1	11/25/20 11:25	11/30/20 15:50	7440-09-7	
Sodium	**45000**	ug/L	500	107	1	11/25/20 11:25	11/30/20 15:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**305**	mg/L	20.0	8.4	1		11/18/20 12:08		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**763**	mg/L	10.0	10.0	1		11/17/20 10:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.1**	mg/L	5.0	1.8	5		11/28/20 14:59	16887-00-6	
Fluoride	**0.66**	mg/L	0.20	0.085	1		11/28/20 14:43	16984-48-8	
Sulfate	**292**	mg/L	50.0	21.0	50		11/28/20 15:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-9S **Lab ID: 60354371004** Collected: 11/11/20 12:00 Received: 11/13/20 03:54 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	**1500**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 15:52	7440-42-8	
Calcium	**177000**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 15:52	7440-70-2	
Iron	**183**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 15:52	7439-89-6	
Magnesium	**51900**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 15:52	7439-95-4	
Manganese	**907**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 15:52	7439-96-5	
Potassium	**4890**	ug/L	500	189	1	11/25/20 11:25	11/30/20 15:52	7440-09-7	
Sodium	**53500**	ug/L	500	107	1	11/25/20 11:25	11/30/20 15:52	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**348**	mg/L	20.0	8.4	1		11/18/20 12:13		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**957**	mg/L	13.3	13.3	1		11/17/20 10:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**91.6**	mg/L	10.0	3.6	10		11/28/20 16:18	16887-00-6	
Fluoride	**0.51**	mg/L	0.20	0.085	1		11/28/20 16:03	16984-48-8	
Sulfate	**277**	mg/L	20.0	8.4	20		11/28/20 16:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-DUP-1 **Lab ID: 60354371005** Collected: 11/11/20 08:00 Received: 11/13/20 03:54 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	**7540**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 15:55	7440-42-8	
Calcium	**163000**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 15:55	7440-70-2	
Iron	**36.5J**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 15:55	7439-89-6	
Magnesium	**41600**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 15:55	7439-95-4	
Manganese	**534**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 15:55	7439-96-5	
Potassium	**3980**	ug/L	500	189	1	11/25/20 11:25	11/30/20 15:55	7440-09-7	
Sodium	**46100**	ug/L	500	107	1	11/25/20 11:25	11/30/20 15:55	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**298**	mg/L	20.0	8.4	1		11/18/20 12:18		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**799**	mg/L	10.0	10.0	1		11/17/20 10:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.1**	mg/L	2.0	0.71	2		11/28/20 17:06	16887-00-6	
Fluoride	**0.67**	mg/L	0.20	0.085	1		11/28/20 16:50	16984-48-8	
Sulfate	**292**	mg/L	20.0	8.4	20		11/28/20 17:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-DUP-2 **Lab ID: 60354371006** Collected: 11/11/20 08:00 Received: 11/13/20 03:54 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	**16900**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 15:57	7440-42-8	
Calcium	**299000**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 15:57	7440-70-2	
Iron	**155**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 15:57	7439-89-6	
Magnesium	**72000**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 15:57	7439-95-4	
Manganese	**628**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 15:57	7439-96-5	
Potassium	**5020**	ug/L	500	189	1	11/25/20 11:25	11/30/20 15:57	7440-09-7	
Sodium	**98900**	ug/L	500	107	1	11/25/20 11:25	11/30/20 15:57	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**380**	mg/L	20.0	8.4	1		11/18/20 12:24		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1680**	mg/L	13.3	13.3	1		11/17/20 10:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**4.2**	mg/L	1.0	0.36	1		11/28/20 17:38	16887-00-6	
Fluoride	**0.44**	mg/L	0.20	0.085	1		11/28/20 17:38	16984-48-8	
Sulfate	**860**	mg/L	100	42.0	100		12/01/20 11:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-FB-1 **Lab ID: 60354371007** Collected: 11/11/20 12:10 Received: 11/13/20 03:54 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	**212**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 16:05	7440-42-8	
Calcium	**2620**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 16:05	7440-70-2	
Iron	**1950**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 16:05	7439-89-6	
Magnesium	**2140**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 16:05	7439-95-4	
Manganese	**199**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 16:05	7439-96-5	
Potassium	**1910**	ug/L	500	189	1	11/25/20 11:25	11/30/20 16:05	7440-09-7	
Sodium	**2420**	ug/L	500	107	1	11/25/20 11:25	11/30/20 16:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		11/18/20 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/17/20 10:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.36**	mg/L	1.0	0.36	1		11/28/20 18:25	16887-00-6	
Fluoride	**<0.085**	mg/L	0.20	0.085	1		11/28/20 18:25	16984-48-8	
Sulfate	**<0.42**	mg/L	1.0	0.42	1		11/28/20 18:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-FB-2 **Lab ID: 60354371008** Collected: 11/11/20 13:50 Received: 11/13/20 03:54 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	**24.8J**	ug/L	100	11.7	1	11/25/20 11:25	11/30/20 16:07	7440-42-8	
Calcium	**897**	ug/L	200	32.4	1	11/25/20 11:25	11/30/20 16:07	7440-70-2	
Iron	**31.6J**	ug/L	50.0	26.8	1	11/25/20 11:25	11/30/20 16:07	7439-89-6	
Magnesium	**258**	ug/L	50.0	19.7	1	11/25/20 11:25	11/30/20 16:07	7439-95-4	
Manganese	**1.1J**	ug/L	5.0	0.97	1	11/25/20 11:25	11/30/20 16:07	7439-96-5	
Potassium	**<189**	ug/L	500	189	1	11/25/20 11:25	11/30/20 16:07	7440-09-7	
Sodium	**573**	ug/L	500	107	1	11/25/20 11:25	11/30/20 16:07	7440-23-5	B
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		11/18/20 12:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/17/20 10:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.36**	mg/L	1.0	0.36	1		11/28/20 19:13	16887-00-6	
Fluoride	**<0.085**	mg/L	0.20	0.085	1		11/28/20 19:13	16984-48-8	
Sulfate	**<0.42**	mg/L	1.0	0.42	1		11/28/20 19:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-1S **Lab ID: 60354369001** Collected: 11/11/20 11:05 Received: 11/13/20 03:54 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	**645**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 20:09	7440-42-8	
Calcium	**85100**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 20:09	7440-70-2	
Iron	**112**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 20:09	7439-89-6	
Magnesium	**20400**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 20:09	7439-95-4	
Manganese	**41.9**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 20:09	7439-96-5	
Potassium	**7520**	ug/L	500	189	1	12/06/20 12:00	12/08/20 20:09	7440-09-7	
Sodium	**21800**	ug/L	500	107	1	12/06/20 12:00	12/08/20 20:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**224**	mg/L	20.0	8.4	1		11/18/20 11:31		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**8.5**	mg/L	5.0	5.0	1		11/17/20 10:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**23.3**	mg/L	2.0	0.78	2		12/01/20 17:54	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.075	1		12/01/20 17:39	16984-48-8	
Sulfate	**75.1**	mg/L	20.0	5.6	20		12/01/20 18:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-2S **Lab ID: 60354369002** Collected: 11/12/20 14:15 Received: 11/13/20 03:54 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	**9120**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 20:11	7440-42-8	
Calcium	**220000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 20:11	7440-70-2	
Iron	**57.0**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 20:11	7439-89-6	
Magnesium	**40900**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 20:11	7439-95-4	
Manganese	**599**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 20:11	7439-96-5	
Potassium	**7930**	ug/L	500	189	1	12/06/20 12:00	12/08/20 20:11	7440-09-7	
Sodium	**62200**	ug/L	500	107	1	12/06/20 12:00	12/08/20 20:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**420**	mg/L	20.0	8.4	1		11/19/20 10:03		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**984**	mg/L	13.3	13.3	1		11/17/20 16:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**135**	mg/L	20.0	7.8	20		12/01/20 19:06	16887-00-6	
Fluoride	**0.44**	mg/L	0.20	0.075	1		12/01/20 18:23	16984-48-8	
Sulfate	**221**	mg/L	20.0	5.6	20		12/01/20 19:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-4S **Lab ID: 60354369003** Collected: 11/12/20 12:20 Received: 11/13/20 03:54 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	**473**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 20:14	7440-42-8	
Calcium	**175000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 20:14	7440-70-2	
Iron	**32.6J**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 20:14	7439-89-6	
Magnesium	**37500**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 20:14	7439-95-4	
Manganese	**324**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 20:14	7439-96-5	
Potassium	**5220**	ug/L	500	189	1	12/06/20 12:00	12/08/20 20:14	7440-09-7	
Sodium	**14800**	ug/L	500	107	1	12/06/20 12:00	12/08/20 20:14	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**575**	mg/L	20.0	8.4	1		11/19/20 10:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**631**	mg/L	10.0	10.0	1		11/17/20 16:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.4**	mg/L	1.0	0.39	1		12/01/20 19:21	16887-00-6	B
Fluoride	**0.28**	mg/L	0.20	0.075	1		12/01/20 19:21	16984-48-8	
Sulfate	**36.0**	mg/L	5.0	1.4	5		12/01/20 19:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-5S **Lab ID: 60354369004** Collected: 11/11/20 15:20 Received: 11/13/20 03:54 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	**14500**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 20:24	7440-42-8	M1
Calcium	**248000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 20:24	7440-70-2	M1
Iron	**260**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 20:24	7439-89-6	
Magnesium	**47400**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 20:24	7439-95-4	
Manganese	**1430**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 20:24	7439-96-5	
Potassium	**5520**	ug/L	500	189	1	12/06/20 12:00	12/08/20 20:24	7440-09-7	
Sodium	**176000**	ug/L	500	107	1	12/06/20 12:00	12/08/20 20:24	7440-23-5	M1
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**318**	mg/L	20.0	8.4	1		11/18/20 11:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1690**	mg/L	20.0	20.0	1		11/17/20 10:13		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.5**	mg/L	2.0	0.78	2		12/01/20 20:04	16887-00-6	
Fluoride	**0.69**	mg/L	0.20	0.075	1		12/01/20 19:50	16984-48-8	
Sulfate	**792**	mg/L	100	27.8	100		12/01/20 20:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-LMW-6S **Lab ID: 60354369005** Collected: 11/11/20 14:30 Received: 11/13/20 03:54 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	**17400**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 20:29	7440-42-8	
Calcium	**298000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 20:29	7440-70-2	
Iron	**450**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 20:29	7439-89-6	
Magnesium	**70400**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 20:29	7439-95-4	
Manganese	**572**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 20:29	7439-96-5	
Potassium	**5400**	ug/L	500	189	1	12/06/20 12:00	12/08/20 20:29	7440-09-7	
Sodium	**100000**	ug/L	500	107	1	12/06/20 12:00	12/08/20 20:29	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**394**	mg/L	20.0	8.4	1		11/18/20 11:42		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1560**	mg/L	13.3	13.3	1		11/17/20 10:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**4.0**	mg/L	1.0	0.39	1		12/01/20 20:33	16887-00-6	B
Fluoride	**0.44**	mg/L	0.20	0.075	1		12/01/20 20:33	16984-48-8	
Sulfate	**771**	mg/L	100	27.8	100		12/01/20 21:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-BMW-1S **Lab ID: 60354369018** Collected: 11/16/20 14:50 Received: 11/18/20 04:15 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	**75.1J**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 19:46	7440-42-8	
Calcium	**141000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 19:46	7440-70-2	
Iron	**52.0**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 19:46	7439-89-6	
Magnesium	**27800**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 19:46	7439-95-4	
Manganese	**1240**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 19:46	7439-96-5	
Potassium	**366J**	ug/L	500	189	1	12/06/20 12:00	12/08/20 19:46	7440-09-7	B
Sodium	**4800**	ug/L	500	107	1	12/06/20 12:00	12/08/20 19:46	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**422**	mg/L	20.0	8.4	1		11/19/20 16:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**505**	mg/L	10.0	10.0	1		11/19/20 15:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**7.0**	mg/L	1.0	0.39	1		12/07/20 22:38	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.075	1		12/07/20 22:38	16984-48-8	
Sulfate	**24.8**	mg/L	2.0	0.56	2		12/07/20 22:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN SCPB
Pace Project No.: 60354371

Sample: S-BMW-3S **Lab ID: 60354369011** Collected: 11/16/20 12:20 Received: 11/18/20 04:15 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	**66.3J**	ug/L	100	11.7	1	12/06/20 12:00	12/08/20 19:19	7440-42-8	
Calcium	**125000**	ug/L	200	32.4	1	12/06/20 12:00	12/08/20 19:19	7440-70-2	
Iron	**35.3J**	ug/L	50.0	26.8	1	12/06/20 12:00	12/08/20 19:19	7439-89-6	
Magnesium	**23000**	ug/L	50.0	19.7	1	12/06/20 12:00	12/08/20 19:19	7439-95-4	
Manganese	**344**	ug/L	5.0	0.97	1	12/06/20 12:00	12/08/20 19:19	7439-96-5	
Potassium	**440J**	ug/L	500	189	1	12/06/20 12:00	12/08/20 19:19	7440-09-7	B
Sodium	**5250**	ug/L	500	107	1	12/06/20 12:00	12/08/20 19:19	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**378**	mg/L	20.0	8.4	1		11/19/20 15:40		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**455**	mg/L	10.0	10.0	1		11/19/20 15:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**11.4**	mg/L	1.0	0.39	1		12/08/20 14:12	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.075	1		12/08/20 14:12	16984-48-8	
Sulfate	**30.6**	mg/L	2.0	0.56	2		12/07/20 17:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 691530
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: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

METHOD BLANK: 2793531 Matrix: Water
Associated Lab Samples: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<11.7	100	11.7	11/30/20 15:35	
Calcium	ug/L	<32.4	200	32.4	11/30/20 15:35	
Iron	ug/L	<26.8	50.0	26.8	11/30/20 15:35	
Magnesium	ug/L	<19.7	50.0	19.7	11/30/20 15:35	
Manganese	ug/L	<0.97	5.0	0.97	11/30/20 15:35	
Potassium	ug/L	<189	500	189	11/30/20 15:35	
Sodium	ug/L	118J	500	107	11/30/20 15:35	

LABORATORY CONTROL SAMPLE: 2793532

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1030	103	85-115	
Calcium	ug/L	10000	10500	105	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	10600	106	85-115	
Manganese	ug/L	1000	1070	107	85-115	
Potassium	ug/L	10000	10600	106	85-115	
Sodium	ug/L	10000	10700	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2793533 2793534

Parameter	Units	60354371001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	229	1000	1000	1280	1310	105	108	70-130	2	20	
Calcium	ug/L	156000	10000	10000	175000	180000	194	239	70-130	3	20	M1
Iron	ug/L	<26.8	10000	10000	10400	10500	104	105	70-130	1	20	
Magnesium	ug/L	30200	10000	10000	42400	43500	122	133	70-130	3	20	M1
Manganese	ug/L	62.4	1000	1000	1120	1140	106	107	70-130	2	20	
Potassium	ug/L	4890	10000	10000	15800	16200	109	113	70-130	2	20	
Sodium	ug/L	17200	10000	10000	29000	29700	118	125	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

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 693105
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: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

METHOD BLANK: 2799487 Matrix: Water
Associated Lab Samples: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	28.9J	100	11.7	12/08/20 19:57	
Calcium	ug/L	<32.4	200	32.4	12/08/20 19:57	
Iron	ug/L	<26.8	50.0	26.8	12/08/20 19:57	
Magnesium	ug/L	<19.7	50.0	19.7	12/08/20 19:57	
Manganese	ug/L	<0.97	5.0	0.97	12/08/20 19:57	
Potassium	ug/L	325J	500	189	12/08/20 19:57	
Sodium	ug/L	399J	500	107	12/10/20 12:28	

LABORATORY CONTROL SAMPLE: 2799488

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	998	100	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	10500	105	85-115	
Sodium	ug/L	10000	11300	113	85-115	

MATRIX SPIKE SAMPLE: 2799489

Parameter	Units	60354369004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	14500	1000	16000	145	70-130	M1
Calcium	ug/L	248000	10000	264000	159	70-130	M1
Iron	ug/L	260	10000	10300	101	70-130	
Magnesium	ug/L	47400	10000	58500	111	70-130	
Manganese	ug/L	1430	1000	2460	103	70-130	
Potassium	ug/L	5520	10000	15800	102	70-130	
Sodium	ug/L	176000	10000	189000	133	70-130	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799490 2799491

Parameter	Units	60354368004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	18300	1000	1000	19000	18800	61	48	70-130	1	20	M1
Calcium	ug/L	250000	10000	10000	252000	250000	25	-3	70-130	1	20	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

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799490 2799491

Parameter	Units	60354368004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	363	10000	10000	10200	10000	99	97	70-130	2	20	
Magnesium	ug/L	6220	10000	10000	15400	15200	92	90	70-130	2	20	
Manganese	ug/L	227	1000	1000	1180	1160	96	94	70-130	2	20	
Potassium	ug/L	27900	10000	10000	36800	36400	89	85	70-130	1	20	
Sodium	ug/L	55700	10000	10000	63600	62700	79	70	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 693106
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: 60354369011, 60354369018

METHOD BLANK: 2799492 Matrix: Water
Associated Lab Samples: 60354369011, 60354369018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<11.7	100	11.7	12/08/20 18:54	
Calcium	ug/L	47.9J	200	32.4	12/08/20 18:54	
Iron	ug/L	<26.8	50.0	26.8	12/08/20 18:54	
Magnesium	ug/L	<19.7	50.0	19.7	12/08/20 18:54	
Manganese	ug/L	<0.97	5.0	0.97	12/08/20 18:54	
Potassium	ug/L	224J	500	189	12/08/20 18:54	
Sodium	ug/L	378J	500	107	12/08/20 18:54	

LABORATORY CONTROL SAMPLE: 2799493

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	967	97	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	10000	100	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	10400	104	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799494 2799495

Parameter	Units	60354702003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	86.3J	1000	1000	1050	1070	96	98	70-130	2	20	
Calcium	ug/L	147000	10000	10000	151000	155000	39	77	70-130	2	20	M1
Iron	ug/L	<26.8	10000	10000	9650	9840	96	98	70-130	2	20	
Magnesium	ug/L	36300	10000	10000	44400	45000	81	87	70-130	1	20	
Manganese	ug/L	804	1000	1000	1750	1760	94	96	70-130	1	20	
Potassium	ug/L	8290	10000	10000	17900	18300	96	100	70-130	2	20	
Sodium	ug/L	28900	10000	10000	37600	38400	87	95	70-130	2	20	

MATRIX SPIKE SAMPLE: 2799496

Parameter	Units	60354369012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	66.8J	1000	1020	96	70-130	
Calcium	ug/L	98100	10000	108000	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

MATRIX SPIKE SAMPLE: 2799496

Parameter	Units	60354369012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5380	10000	14900	95	70-130	
Magnesium	ug/L	22100	10000	32000	100	70-130	
Manganese	ug/L	382	1000	1370	99	70-130	
Potassium	ug/L	3660	10000	13700	100	70-130	
Sodium	ug/L	5190	10000	15100	99	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 689882 — Analysis Method: SM 2320B
QC Batch Method: SM 2320B — Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369001, 60354369004, 60354369005, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

METHOD BLANK: 2787067 — Matrix: Water
Associated Lab Samples: 60354369001, 60354369004, 60354369005, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/18/20 11:01	

LABORATORY CONTROL SAMPLE: 2787068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	493	99	90-110	

SAMPLE DUPLICATE: 2787069

Parameter	Units	60354383003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	376	375	0	10	

SAMPLE DUPLICATE: 2787070

Parameter	Units	60354416002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	95.0	96.1	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 690119 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369002, 60354369003, 60354371001

METHOD BLANK: 2788016 Matrix: Water
Associated Lab Samples: 60354369002, 60354369003, 60354371001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/19/20 08:56	

LABORATORY CONTROL SAMPLE: 2788017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	497	99	90-110	

SAMPLE DUPLICATE: 2788018

Parameter	Units	60354502001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	258	259	0	10	

SAMPLE DUPLICATE: 2788019

Parameter	Units	60354368004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	160	161	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 690355
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369011, 60354369018

METHOD BLANK: 2788858 Matrix: Water
Associated Lab Samples: 60354369011, 60354369018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/19/20 14:53	

LABORATORY CONTROL SAMPLE: 2788859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	488	98	90-110	

SAMPLE DUPLICATE: 2788860

Parameter	Units	60354702003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	460	461	0	10	

SAMPLE DUPLICATE: 2788861

Parameter	Units	60354369012 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	310	309	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 689837 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369001, 60354369004, 60354369005, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

METHOD BLANK: 2786727 — Matrix: Water
Associated Lab Samples: 60354369001, 60354369004, 60354369005, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/17/20 10:12	

LABORATORY CONTROL SAMPLE: 2786728

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

SAMPLE DUPLICATE: 2786729

Parameter	Units	60354177003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	5860	5550	5	10	

SAMPLE DUPLICATE: 2786730

Parameter	Units	60354371002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1100	1110	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 689985 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369002, 60354369003, 60354371001

METHOD BLANK: 2787540 Matrix: Water
Associated Lab Samples: 60354369002, 60354369003, 60354371001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/17/20 16:29	

LABORATORY CONTROL SAMPLE: 2787541

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	994	99	80-120	

SAMPLE DUPLICATE: 2787542

Parameter	Units	60354371001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	625	626	0	10	

SAMPLE DUPLICATE: 2787543

Parameter	Units	60354368004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1090	1150	6	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 690481
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60354369011, 60354369018

METHOD BLANK: 2789436 Matrix: Water
Associated Lab Samples: 60354369011, 60354369018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/19/20 15:03	

LABORATORY CONTROL SAMPLE: 2789437

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

SAMPLE DUPLICATE: 2789438

Parameter	Units	60354702003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	628	606	4	10	

SAMPLE DUPLICATE: 2789439

Parameter	Units	60354369012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	396	412	4	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 691609
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: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

METHOD BLANK: 2793736 Matrix: Water
Associated Lab Samples: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.36	1.0	0.36	11/28/20 09:41	
Fluoride	mg/L	<0.085	0.20	0.085	11/28/20 09:41	
Sulfate	mg/L	<0.42	1.0	0.42	11/28/20 09:41	

METHOD BLANK: 2794494 Matrix: Water
Associated Lab Samples: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.36	1.0	0.36	11/30/20 09:10	
Fluoride	mg/L	<0.085	0.20	0.085	11/30/20 09:10	
Sulfate	mg/L	<0.42	1.0	0.42	11/30/20 09:10	

METHOD BLANK: 2795694 Matrix: Water
Associated Lab Samples: 60354371001, 60354371002, 60354371003, 60354371004, 60354371005, 60354371006, 60354371007, 60354371008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.36	1.0	0.36	12/01/20 08:26	
Fluoride	mg/L	<0.085	0.20	0.085	12/01/20 08:26	
Sulfate	mg/L	<0.42	1.0	0.42	12/01/20 08:26	

LABORATORY CONTROL SAMPLE: 2793737

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	102	90-110	
Sulfate	mg/L	5	5.5	109	90-110	

LABORATORY CONTROL SAMPLE: 2794495

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

LABORATORY CONTROL SAMPLE: 2794495

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.3	106	90-110	

LABORATORY CONTROL SAMPLE: 2795695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2793738 2793739

Parameter	Units	60354371001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	58.2	25	25	85.9	85.7	111	110	80-120	0	15	
Fluoride	mg/L	0.38	2.5	2.5	2.8	2.8	95	95	80-120	0	15	
Sulfate	mg/L	33.8	25	25	59.4	59.3	103	102	80-120	0	15	

MATRIX SPIKE SAMPLE: 2793740

Parameter	Units	60354659002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	31.6J	250	257	90	80-120	
Fluoride	mg/L	ND	125	125	100	80-120	
Sulfate	mg/L	516	250	649	53	80-120	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 692033
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: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

METHOD BLANK: 2795126 Matrix: Water
Associated Lab Samples: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/01/20 08:23	
Fluoride	mg/L	<0.075	0.20	0.075	12/01/20 08:23	
Sulfate	mg/L	<0.28	1.0	0.28	12/01/20 08:23	

METHOD BLANK: 2795704 Matrix: Water
Associated Lab Samples: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/01/20 08:27	
Fluoride	mg/L	<0.075	0.20	0.075	12/01/20 08:27	
Sulfate	mg/L	<0.28	1.0	0.28	12/01/20 08:27	

METHOD BLANK: 2795986 Matrix: Water
Associated Lab Samples: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.43J	1.0	0.39	12/02/20 08:04	
Fluoride	mg/L	<0.075	0.20	0.075	12/02/20 08:04	
Sulfate	mg/L	<0.28	1.0	0.28	12/02/20 08:04	

METHOD BLANK: 2796513 Matrix: Water
Associated Lab Samples: 60354369001, 60354369002, 60354369003, 60354369004, 60354369005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.63J	1.0	0.39	12/02/20 08:11	
Fluoride	mg/L	<0.075	0.20	0.075	12/02/20 08:11	
Sulfate	mg/L	<0.28	1.0	0.28	12/02/20 08:11	

LABORATORY CONTROL SAMPLE: 2795127

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	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

LABORATORY CONTROL SAMPLE: 2795127

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

LABORATORY CONTROL SAMPLE: 2795705

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 2795987

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	2.4	97	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2795128 2795129

Parameter	Units	20179873001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	9490	2500	2500	12400	12300	114	114	80-120	0	15	E
Fluoride	mg/L	0.075U	12.5	12.5	12.8	11.6	102	93	80-120	9	15	
Sulfate	mg/L	3220	2500	2500	5640	5610	97	96	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2795130 2795131

Parameter	Units	60354492003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	139	50	50	208	201	137	125	80-120	3	15	E,M1
Fluoride	mg/L	ND	2.5	2.5	2.6	2.7	99	101	80-120	2	15	
Sulfate	mg/L	92.0	50	50	152	148	119	112	80-120	2	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

QC Batch: 693100
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: 60354369011, 60354369018

METHOD BLANK: 2799457 Matrix: Water
Associated Lab Samples: 60354369011, 60354369018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/07/20 08:24	
Fluoride	mg/L	<0.075	0.20	0.075	12/07/20 08:24	
Sulfate	mg/L	<0.28	1.0	0.28	12/07/20 08:24	

METHOD BLANK: 2802268 Matrix: Water
Associated Lab Samples: 60354369011, 60354369018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/08/20 08:14	
Fluoride	mg/L	<0.075	0.20	0.075	12/08/20 08:14	
Sulfate	mg/L	<0.28	1.0	0.28	12/08/20 08:14	

LABORATORY CONTROL SAMPLE: 2799458

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	99	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	4.7	95	90-110	

LABORATORY CONTROL SAMPLE: 2802269

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	2.6	102	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799459 2799460

Parameter	Units	60354369012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.4	5	5	17.6	17.9	84	91	80-120	2	15	
Fluoride	mg/L	0.34	2.5	2.5	2.3	2.5	79	86	80-120	7	15	
Sulfate	mg/L	38.1	10	10	50.9	54.3	128	162	80-120	7	15	E

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SCPB
Pace Project No.: 60354371

MATRIX SPIKE SAMPLE: 2799461

Parameter	Units	60354369019 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	76.7	50	125	96	80-120	
Fluoride	mg/L	0.16J	2.5	2.4	90	80-120	
Sulfate	mg/L	462	250	705	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SCPB
Pace Project No.: 60354371

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.

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60354371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60354369001	S-LMW-1S	EPA 200.7	693105	EPA 200.7	693136
60354369002	S-LMW-2S	EPA 200.7	693105	EPA 200.7	693136
60354369003	S-LMW-4S	EPA 200.7	693105	EPA 200.7	693136
60354369004	S-LMW-5S	EPA 200.7	693105	EPA 200.7	693136
60354369005	S-LMW-6S	EPA 200.7	693105	EPA 200.7	693136
60354371001	S-LMW-3S	EPA 200.7	691530	EPA 200.7	691592
60354371002	S-LMW-7S	EPA 200.7	691530	EPA 200.7	691592
60354371003	S-LMW-8S	EPA 200.7	691530	EPA 200.7	691592
60354371004	S-LMW-9S	EPA 200.7	691530	EPA 200.7	691592
60354371005	S-LMW-DUP-1	EPA 200.7	691530	EPA 200.7	691592
60354371006	S-LMW-DUP-2	EPA 200.7	691530	EPA 200.7	691592
60354371007	S-LMW-FB-1	EPA 200.7	691530	EPA 200.7	691592
60354371008	S-LMW-FB-2	EPA 200.7	691530	EPA 200.7	691592
60354369011	S-BMW-3S	EPA 200.7	693106	EPA 200.7	693137
60354369018	S-BMW-1S	EPA 200.7	693106	EPA 200.7	693137
60354369001	S-LMW-1S	SM 2320B	689882		
60354369002	S-LMW-2S	SM 2320B	690119		
60354369003	S-LMW-4S	SM 2320B	690119		
60354369004	S-LMW-5S	SM 2320B	689882		
60354369005	S-LMW-6S	SM 2320B	689882		
60354371001	S-LMW-3S	SM 2320B	690119		
60354371002	S-LMW-7S	SM 2320B	689882		
60354371003	S-LMW-8S	SM 2320B	689882		
60354371004	S-LMW-9S	SM 2320B	689882		
60354371005	S-LMW-DUP-1	SM 2320B	689882		
60354371006	S-LMW-DUP-2	SM 2320B	689882		
60354371007	S-LMW-FB-1	SM 2320B	689882		
60354371008	S-LMW-FB-2	SM 2320B	689882		
60354369011	S-BMW-3S	SM 2320B	690355		
60354369018	S-BMW-1S	SM 2320B	690355		
60354369001	S-LMW-1S	SM 2540C	689837		
60354369002	S-LMW-2S	SM 2540C	689985		
60354369003	S-LMW-4S	SM 2540C	689985		
60354369004	S-LMW-5S	SM 2540C	689837		
60354369005	S-LMW-6S	SM 2540C	689837		
60354371001	S-LMW-3S	SM 2540C	689985		
60354371002	S-LMW-7S	SM 2540C	689837		
60354371003	S-LMW-8S	SM 2540C	689837		
60354371004	S-LMW-9S	SM 2540C	689837		
60354371005	S-LMW-DUP-1	SM 2540C	689837		
60354371006	S-LMW-DUP-2	SM 2540C	689837		
60354371007	S-LMW-FB-1	SM 2540C	689837		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SCPB
Pace Project No.: 60354371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60354371008	**S-LMW-FB-2**	SM 2540C	689837		
60354369011	**S-BMW-3S**	SM 2540C	690481		
60354369018	**S-BMW-1S**	SM 2540C	690481		
60354369001	**S-LMW-1S**	EPA 300.0	692033		
60354369002	**S-LMW-2S**	EPA 300.0	692033		
60354369003	**S-LMW-4S**	EPA 300.0	692033		
60354369004	**S-LMW-5S**	EPA 300.0	692033		
60354369005	**S-LMW-6S**	EPA 300.0	692033		
60354371001	**S-LMW-3S**	EPA 300.0	691609		
60354371002	**S-LMW-7S**	EPA 300.0	691609		
60354371003	**S-LMW-8S**	EPA 300.0	691609		
60354371004	**S-LMW-9S**	EPA 300.0	691609		
60354371005	**S-LMW-DUP-1**	EPA 300.0	691609		
60354371006	**S-LMW-DUP-2**	EPA 300.0	691609		
60354371007	**S-LMW-FB-1**	EPA 300.0	691609		
60354371008	**S-LMW-FB-2**	EPA 300.0	691609		
60354369011	**S-BMW-3S**	EPA 300.0	693100		
60354369018	**S-BMW-1S**	EPA 300.0	693100		

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Sample Condition Upon Receipt

WO# : 60354371

60354371

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 ☒ ice

Thermometer Used: T2F9 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 0.9 Corr. Factor +0.2 Corrected 1.1

Date and initials of person examining contents: 11.13.2020

Temperature should be above freezing to 6°C 0.3, 0.8 0.5 1.0, tt 11.13.20

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# 603173	☒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: _____

REVIEWED
By jchurch at 11:09 am, 11/16/20

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A 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:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren SCPB Sioux Energy Center
Project Number:	153-140602.0003B (COC #9)

Section C Invoice Information:

Attention:	
Company Name:	
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	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	N	N	N	N	N		
1	S-LMW-1S	WT	G			11/11/20	1105		2	1		1							1	1	1	1						60354371
2	S-LMW-2S	WT	G			11/12/20	1415		2	1		1							1	1	1	1						
3	S-LMW-3S	WT	G			11/12/20	1320		2	1		1							1	1	1	1						
4	S-LMW-4S	WT	G			11/12/20	1220		2	1		1							1	1	1	1						
5	S-LMW-5S	WT	G			11/11/20	1520		2	1		1							1	1	1	1						
6	S-LMW-6S	WT	G			11/11/20	1430		2	1		1							1	1	1	1						
7	S-LMW-7S	WT	G			11/11/20	1335		2	1		1							1	1	1	1						
8	S-LMW-8S	WT	G			11/11/20	1245		2	1		1							1	1	1	1						
9	S-LMW-9S	WT	G			11/11/20	1200		2	1		1							1	1	1	1						
10	S-BMW-1S	WT	G																									
11	S-BMW-3S	WT	G																									
12	S-LMW-DUP-1	WT	G			11/11/20	—		2	1		1							1	1	1	1						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert/Golder	11/12/2020	1620		11-13-20	0354

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1.1	Y	Y	Y
0.5			
1.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert DATE Signed (MM/DD/YY): 11/12/2020

*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.

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 2

Section A Required Client Information

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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:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren SCPB Sioux Energy Center
Project Number:	153-140602.0003B (COC #9)

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY: NPDES, GROUND WATER (circled), DRINKING WATER, UST, RCRA, OTHER

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WP, AR, OT, TS

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

Requested Analysis Filtered (Y/N): N for all analyses

Pace Project No./ Lab I.D.: 60354371

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-DUP-2	WT	G			11/11/20	—		2	1		1						/	/	/	/						
2	S-LMW-FB-1	WT	G			11/11/20	1210		2	1		1						/	/	/	/						
3	S-LMW-FB-2	WT	G			11/11/20	1350		2	1		1						/	/	/	/						
4	S-LMW-MS-1	WT	G			11/12/20	1320		2	1		1						/	/	/	/						w/ S-LMW-3S
5	S-LMW-MSD-1	WT	G			↓	↓		2	1		1						/	/	/	/						w/ S-LMW-3S
6		WT	G																								
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	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert/Golder	11/12/20	1620	[illegible] / Pace	11-13-20	0354	1.1	Y	Y	Y
							0.5	↓	↓	↓
							1.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 11/12/2020

MEMORANDUM

DATE January 4, 2021 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth **EMAIL AMuehlfarth@golder.com**

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SEC-SCPB – DETECTION MONITORING - DATA PACKAGE 60354371

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

- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- 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 duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J).

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Sioux - SCPB
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 01/04/2021

Laboratory: Pace Analytical - KS
SDG #: 60354371
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2540C (TDS); SM2320B (Alkalinity); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names S-LMW-3S, S-LMW-7S, S-LMW-8S, S-LMW-9S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S, S-LMW-2S S-LMW-4S, S-LMW-5S, S-LMW-6S, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			11/11/2020 - 11/16/2020
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			See Notes
g) Field parameters collected (note types)?	x			pH, S.Cond., Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

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)?				S-LMW-DUP-1 @ S-LMW-8S
	x			S-LMW-DUP-2 @ S-LMW-6S
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			Max RPD: 6% (<10%)

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

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

Comments/Notes:

Sulfate and chloride were diluted in several samples, no qualification necessary.

Method Blanks:

2793531: Sodium (118J), associated with samples -71001 through -71008. Sample results that were >10x the blank result or > RL were not qualified.

2799487: Boron (28.9J), Potassium (325J), Sodium (399J), associated with samples -69001 through -69005. Sample results >10x the blank result, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

2799492: Calcium (47.9J), Potassium (224J), Sodium (378J), associated with samples -69011 and 69018. Sample results that were >10x the blank result or > RL were not qualified.

2795986: Chloride (0.43J), associated with samples -69001 through -69005. Sample results were > RL, no qualification necessary.

2796513:Chloride (0.63J), associated with samples -69001 through -69005. Sample results were > RL, no qualification necessary.

Field Blanks:

S-LMW-FB-1 @ S-LMW-9S: Boron (212), Calcium (2620), Iron (1950), Magnesium (2140), Manganese (199), Potassium (1910), Sodium (2420). Sample results >RL, no qualification necessary.

S-LMW-FB-2 @ S-LMW-7S: Boron (24.8J), Calcium (897), Iron (31.6J), Magnesium (258), Manganese (1.1J), Sodium (573).

DUP:

S-LMW-DUP-1: RPD exceeds limit (20%) for Iron (26.2%).

S-LMW-DUP-2: RPD exceeds limit (20%) for Iron (97.5%).

MS/MSD:

2793533/2793534: MS/MSD % recovery high for Calcium and Magnesium. Associated with sample -71001.

2799489: MS % recovery high for Boron, Calcium, Sodium. Associated with sample -69004.

2799490/2799491: MS/MSD % recovery low for Boron, Calcium. MS/MSD performed on unrelated sample, no qualification necessary.

2799494/2799495: MS % recovery low for Calcium. MS/MSD performed on unrelated sample, no qualification necessary.

2793740: MS % recovery low for Sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

2795130/2795131: MS/MSD % recovery high for Chloride. MS/MSD performed on unrelated sample, no qualification necessary.

2799459/2799460: MS % recovery low for Fluoride, MS/MSD % recovery high for Sulfate. 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-BMW-1S	Potassium	500	U	Detected in MB, detected in sample <PQL
S-BMW-3S	Potassium	500	U	"
S-LMW-8S	Iron	47.5	J	DUP RPD exceeds limit
S-LMW-DUP-1	Iron	36.5	J	"
S-LMW-6S	Iron	450	J	"
S-LMW-DUP-2	Iron	155	J	"
S-LMW-3S	Calcium	156000	J	MS/MSD recovery outside control limits
"	Magnesium	30200	J	
S-LMW-5S	Boron	14500	J	
"	Calcium	248000	J	"
"	Sodium	176000	J	"
S-LMW-7S	Iron	50.0	U	Detected in FB, detected in sample <PQL
S-LMW-9S	Boron	1500	J-	Detected in FB, sample result >PQL but <10x blank result
"	Iron	183	J-	"
"	Manganese	907	J-	"
"	Potassium	4890	J-	"

Signature: Ann Muehlfarth Date: 01/04/2021

APPENDIX B

Alternative Source Demonstration - November 2019 Sampling Event

TECHNICAL MEMORANDUM

DATE May 19, 2020 **Project No.** 153140602

TO Ameren Missouri
1901 Chouteau Ave, St. Louis, Mo 63103

FROM Mark Haddock, PE, Jeffrey Ingram

SCPB – ATERNATIVE SOURCE DEMONSTRATION – NOVEMBER 2019 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 Inc. ("Golder") has prepared this Technical Memorandum that indicates Statistically Significant Increases (SSIs) calculated at Ameren Missouri's (Ameren) Sioux Energy Center (SEC), fly ash surface impoundment (SCPB) result from an alternative source. 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

In November 2017, the first round of detection monitoring was completed at the SEC's SCPB Coal Combustion Residual (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 a detailed analysis of results were completed for the SCPB 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. The SSIs observed in SCPB wells were caused by an alternative source that, was determined to be the adjacent SCPA surface impoundment . 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 2019 SAMPLING EVENT

A summary of the November 2019 sampling results can be found in **Table 1**. **Figure 1** of this Technical Memorandum displays a comparison of November 2019 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 this figure, the November 2019 SCPB monitoring well sample results plot between the background groundwater quality and the SCPA pore-water on the piper diagram. This indicates that the impacts originated from the SPCA and are mixing with groundwater as they migrate. Like the November 2017 Sampling Event ASD, results from this diagram demonstrate that groundwater quality in the monitoring wells around the SCPB is impacted by the SCPA and not the SCPB.

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260, Ballwin, Missouri, USA 63021 T: +1 314 984-8800 F: +1 314 984-8770

Additional supporting lines of evidence from the previous ASDs are also applicable in this November 2019 Sampling Event ASD. Summaries of supporting lines of evidence include:

- Potentiometric surface mapping from 2018, 2019 and 2020 continue to show that while groundwater conditions can be variable, net groundwater flow around the SCPB is toward the northeast, flowing from the SCPA toward the SCPB. This supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells because impacted monitoring wells around the SCPB are generally located downgradient from the SCPA.
- The SCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a bottom elevation of approximately 419 feet above mean sea level (FT MSL) at its lowest point. The low permeability HDPE liner system in the SCPB is a barrier to the CCR impact migration and provides containment for CCR.
- The SCPA began operation in 1967 and has a bottom elevation estimated to be at approximately 370 FT MSL, which is much deeper than the SCPB. In addition to the different pore-water fingerprints, there are elevated concentrations of CCR impact indicators in the intermediate and deep zones of groundwater in the alluvial aquifer as shown in the SCPA Annual reports. Since impacts are present in the shallow, intermediate (middle), and deep alluvial zones and are not isolated to the shallow zone where SCPB impacts would most readily occur, the impacts are most likely from the SCPA, which extends to deeper depths in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction and hydrogeological evidence all demonstrate that impacts (SSIs) calculated during the November 2019 Sampling Event for the SCPB CCR Unit were not caused by impacts from the SCPB surface impoundment, and the SCPA surface impoundment is the source of the SCPB SSIs.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – November 2019 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 2019 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 INC.

_____

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

Principal, Practice Leader

Table 1
November 2019 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

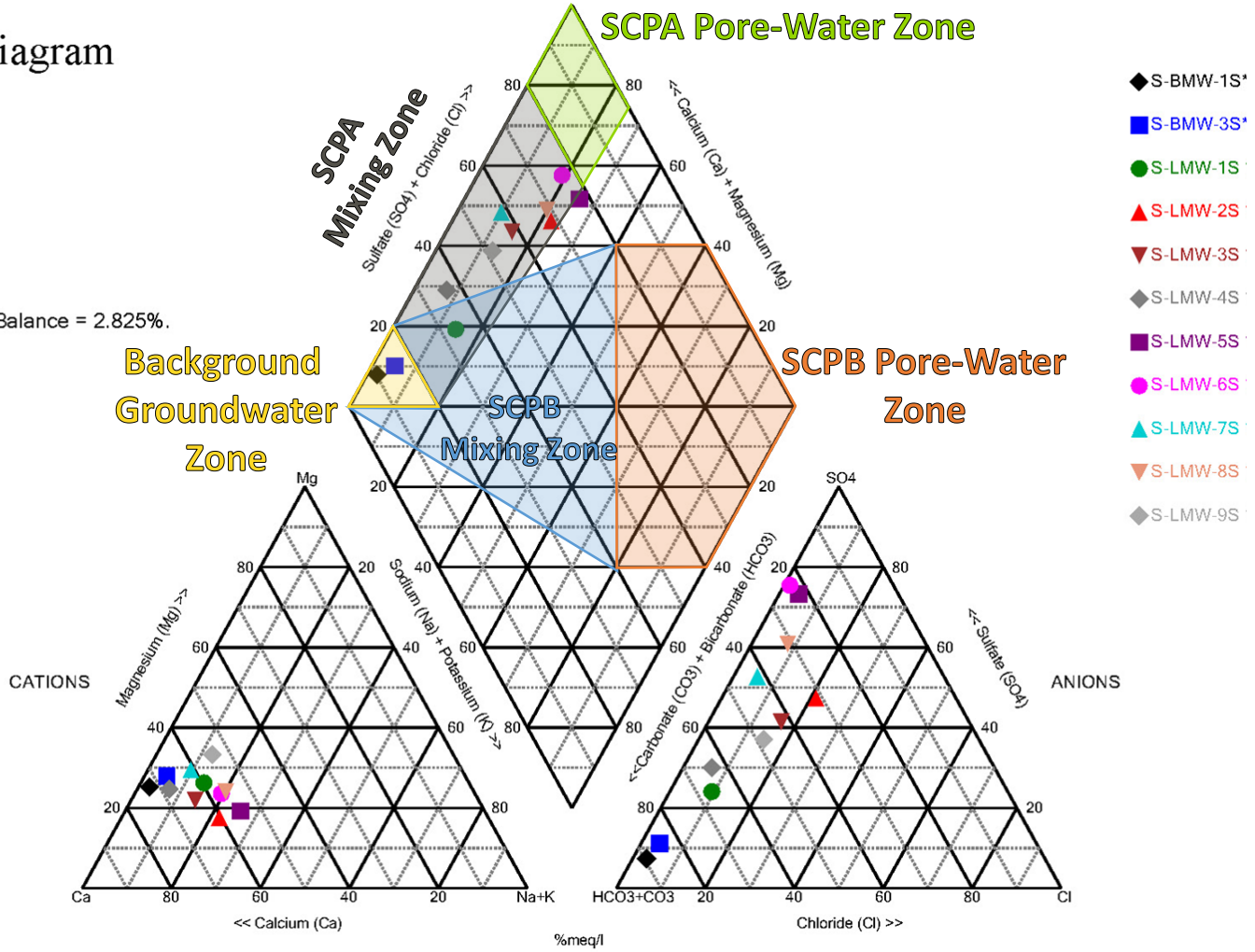
			BACKGROUND		GROUNDWATER MONITORING WELLS								
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
November 2019 Detection Monitoring Event													
DATE	NA	NA	11/13/2019	11/13/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/15/2019
pH	SU	6.387-7.785	6.88	7.13	7.27	7.01	6.92	6.77	6.82	6.84	6.80	6.93	6.70
BORON, TOTAL	µg/L	118	118	80.1 J	1,270	11,200 J	961	4,290	14,900	19,300	4,830	8,590	1,640
CALCIUM, TOTAL	µg/L	168,826	143,000 J	102,000	79,400	170,000 J	165,000	180,000	266,000	292,000	208,000	153,000	189,000
CHLORIDE, TOTAL	mg/L	12.32	6.4	7.6	18.2	102	66.3	23.0	31.0	4.1	28.0	36.2	77.2
FLUORIDE, TOTAL	mg/L	0.395	0.28	0.23	0.29	0.31	0.26	0.16 J	0.39	0.21	0.21	0.83	0.27
SULFATE, TOTAL	mg/L	37.38	26.5	34.4	70.2	317	238	170	852	917	402	399	287
TOTAL DISSOLVED SOLIDS	mg/L	565	551	418	386	927	798	816	1,770	1,870	1,140	922	1,110
January 2020 Verification Sampling Event													
DATE	NA	NA				1/2/2020		1/3/2020					
pH	SU	6.387-7.785											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	168,826				193,000		208,000					
CHLORIDE, TOTAL	mg/L	12.32											
FLUORIDE, TOTAL	mg/L	0.395											
SULFATE, TOTAL	mg/L	37.38											
TOTAL DISSOLVED SOLIDS	mg/L	565											

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

Prepared By: EMS
Checked By: BTT
Reviewed By: SCP

Piper Diagram

Cation-Anion Balance = 2.825%.



Notes:

1.) Data used to generate diagram is available in the SCPB Annual Report.

2.) Piper diagram generated using Sanitas Software.

CLIENT/PROJECT					TITLE					
AMEREN MISSOURI SIOUX ENERGY CENTER				GOLDER	**SCPB PIPER DIAGRAM FOR NOVEMBER 2019**					
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
JSI	KAB	MNH	2020/05/04	NA	NA	153-1406-01.0003	NA	NA	0	1

APPENDIX C

Alternative Source Demonstration – April 2020 Sampling Event

TECHNICAL MEMORANDUM

DATE November 18, 2020 **Project No.** 153140602

TO Ameren Missouri
1901 Chouteau Ave, St. Louis, Mo 63103

FROM Mark Haddock, PE, Jeffrey Ingram

SCPB – ATERNATIVE SOURCE DEMONSTRATION – APRIL 2020 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 Inc. ("Golder") has prepared this Technical Memorandum that indicates Statistically Significant Increases (SSIs) calculated at Ameren Missouri's (Ameren) Sioux Energy Center (SEC), fly ash surface impoundment (SCPB) result from an alternative source. 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

In November 2017, the first round of detection monitoring was completed at the SEC's SCPB Coal Combustion Residual (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 a detailed analysis of results were completed for the SCPB 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. The SSIs observed in SCPB wells were caused by an alternative source that, was determined to be the adjacent SCPA surface impoundment. 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 APRIL 2020 SAMPLING EVENT

A summary of the April 2020 sampling results can be found in **Table 1**. **Figure 1** of this Technical Memorandum displays a comparison of April 2020 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 this figure, the April 2020 SCPB monitoring well sample results plot between the background groundwater quality and the SCPA pore-water on the piper diagram. This indicates that the impacts originated from the SCPA and are mixing with groundwater as they migrate. Like the November 2017 Sampling Event ASD, results from this diagram demonstrate that groundwater quality in the monitoring wells around the SCPB is impacted by the SCPA and not the SCPB.

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260, Ballwin, Missouri, USA 63021 T: +1 314 984-8800 F: +1 314 984-8770

Additional supporting lines of evidence from the previous ASDs are also applicable in this April 2020 Sampling Event ASD. Summaries of supporting lines of evidence include:

- Potentiometric surface mapping from 2018, 2019 and 2020 continue to show that while groundwater conditions can be variable, net groundwater flow around the SCPB is toward the east-northeast, flowing from the SCPA toward the SCPB. This supports the conclusion that the unlined SCPA is the source of impacts at the downgradient monitoring wells because impacted monitoring wells around the SCPB are generally located downgradient from the SCPA.
- The SCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a bottom elevation of approximately 419 feet above mean sea level (FT MSL) at its lowest point. The low permeability HDPE liner system in the SCPB is a barrier to the CCR impact migration and provides containment for CCR.
- The SCPA began operation in 1967 and has a bottom elevation estimated to be at approximately 370 FT MSL, which is much deeper than the SCPB. In addition to the different pore-water fingerprints, there are elevated concentrations of CCR impact indicators in the intermediate and deep zones of groundwater in the alluvial aquifer as shown in the SCPA Annual reports. Since impacts are present in the shallow, intermediate (middle), and deep alluvial zones and are not isolated to the shallow zone where SCPB impacts would most readily occur, the impacts are most likely from the SCPA, which extends to deeper depths in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction and hydrogeological evidence all demonstrate that impacts (SSIs) calculated during the April 2020 Sampling Event for the SCPB CCR Unit were not caused by impacts from the SCPB surface impoundment, and the SCPA surface impoundment is the source of the SCPB SSIs.

CERTIFICATION STATEMENT

This *SCPB – Alternative Source Demonstration – April 2020 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 – April 2020 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 INC.

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

Principal, Practice Leader

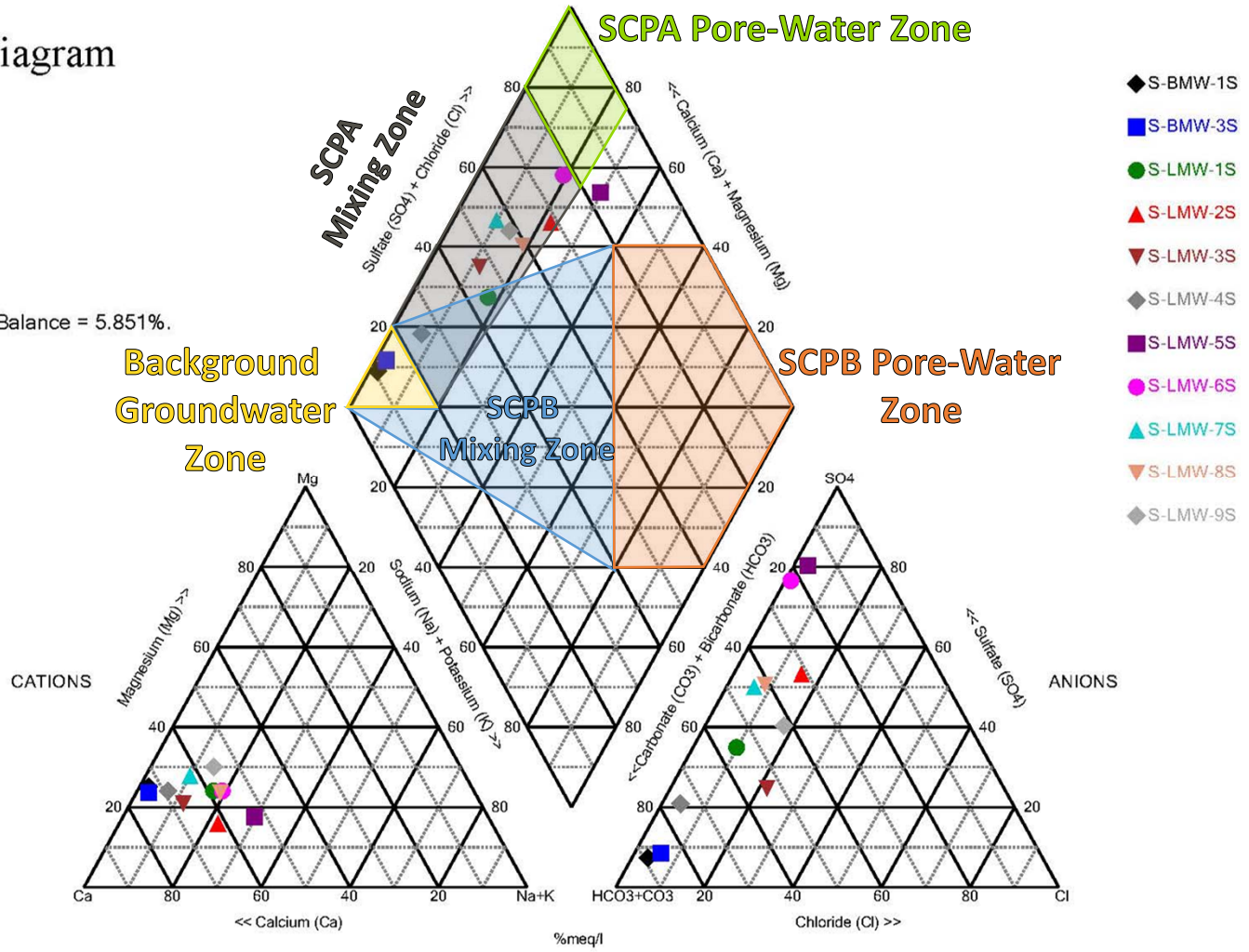
Table 1
April 2020 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

			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
April 2020 Detection Monitoring Event													
DATE	NA	NA	4/22/2020	4/22/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020	4/23/2020
pH	SU	6.387-7.785	6.54	6.90	7.10	6.98	6.67	6.93	7.04	6.98	7.07	6.79	6.75
BORON, TOTAL	µg/L	118	114	95.9 J	1,030	11,100	612	2,020	17,300	19,400	4,920	9,220	1,520
CALCIUM, TOTAL	µg/L	168,826	150,000	134,000	83,300	170,000	208,000	182,000	294,000	324,000	238,000	170,000	197,000 J
CHLORIDE, TOTAL	mg/L	12.32	8.0	13.2	20.4	64.3	92.8	13.8	30.9	5.0	30.4	34.8	90.1
FLUORIDE, TOTAL	mg/L	0.395	0.37	0.43	0.44	0.41	0.25	0.23	0.37	0.20	ND	0.74	0.090 J
SULFATE, TOTAL	mg/L	37.38	27.0	29.6	106	321	148	107	1,100	996	389	300	288
TOTAL DISSOLVED SOLIDS	mg/L	565	565	472	412	862	845	729	1,900	1,900	1,120	841	999
June 2020 Verification Sampling Event													
DATE	NA	NA			6/17/2020	6/16/2020	6/16/2020					6/17/2020	
pH	SU	6.387-7.785											
BORON, TOTAL	µg/L	118											
CALCIUM, TOTAL	µg/L	168,826					183,000					169,000	
CHLORIDE, TOTAL	mg/L	12.32											
FLUORIDE, TOTAL	mg/L	0.395			0.47	0.37							
SULFATE, TOTAL	mg/L	37.38											
TOTAL DISSOLVED SOLIDS	mg/L	565											

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 for, but was not detected above the Method Detection Limit (MDL) or the Practical Quantitation Limit (PQL) and is considered a non-detect. Values displayed as ND.
4. NA - Not applicable.
5. Prediction Limits calculated using Sanitas Software.
6. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
7. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
8. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: JSI
Checked By: BTT
Reviewed By: MNH

Piper Diagram



Notes:

1.) Data used to generate diagram is available in the SCPB Annual Report.

2.) Piper diagram generated using Sanitas Software.

CLIENT/PROJECT							TITLE			
AMEREN MISSOURI SIOUX ENERGY CENTER				GOLDER			**SCPB PIPER DIAGRAM FOR APRIL 2020**			
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
EMS	JSI	MNH	2020/10/13	NA	NA	153-1406-02.0003	NA	NA	0	1

APPENDIX D

2020 Potentiometric Surface Maps

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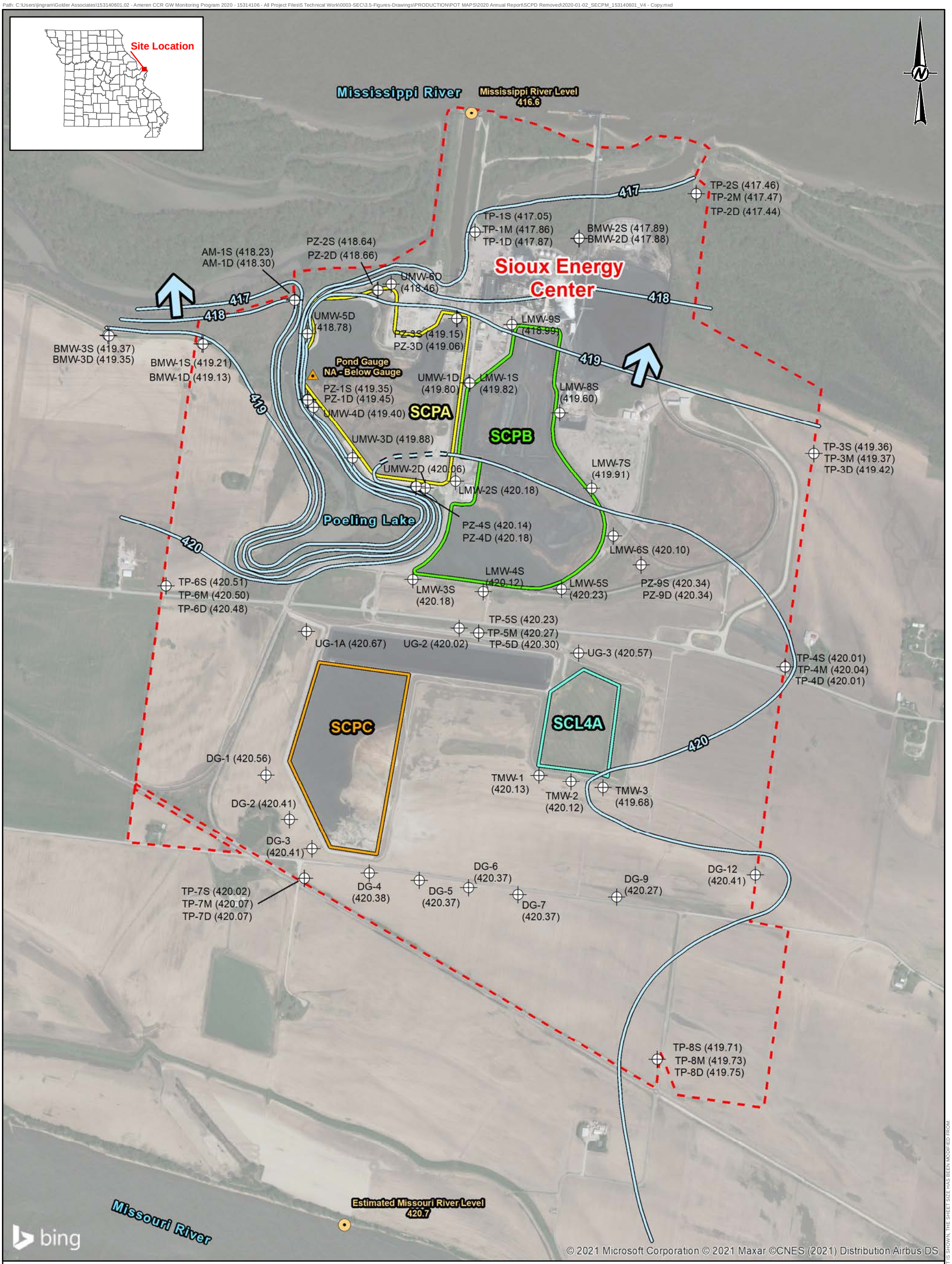


LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundmet
- SCL4A - Dry CCR Disposal Area
- Groundwater Flow Direction

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- SCPA Bottom Ash Surface Impoundment Gauge
- River Gauge Location
- Monitoring Well or Piezometer

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.

REFERENCE

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
JANUARY 02, 2020 POTENTIOMETRIC SURFACE MAP

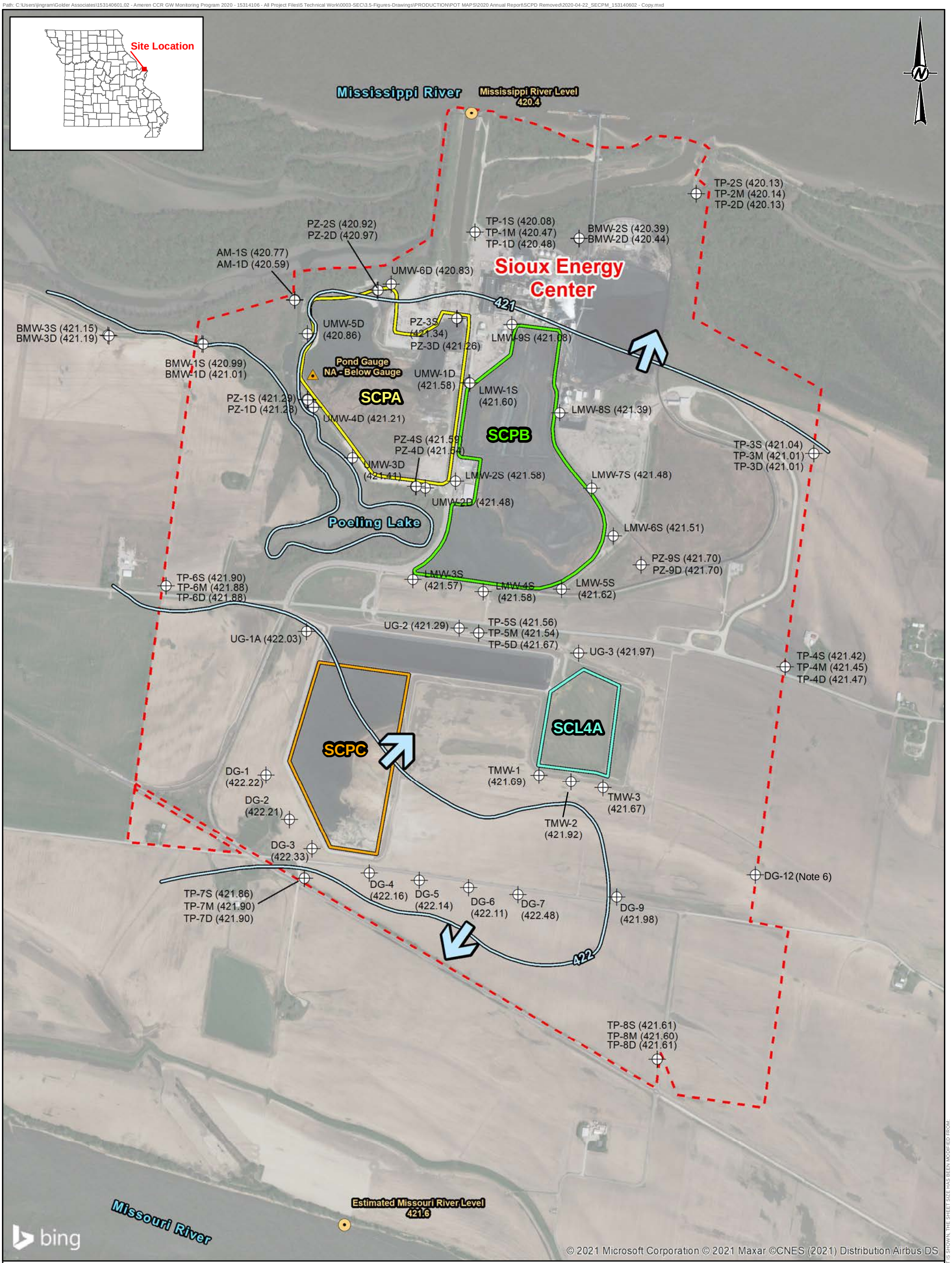
CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-10
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No. 153-140602
PHASE 0003
FIGURE **D1**

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

Path: C:\Users\jingram\Golder Associates\153140601,02 - Ameren CCR GW Monitoring Program 2020 - 15314106 - All Project Files\5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2020 Annual Report\SCPD Removed\2020-04-22_SECPM_153140602 - Copy.mxd



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundmet
- SCL4A - Dry CCR Disposal Area
- Groundwater Flow Direction

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- SCPA Bottom Ash Surface Impoundment Gauge
- River Gauge Location
- Monitoring Well or Piezometer

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.) DG-12 WAS NOT USED FOR POTENTIOMETRIC SURFACE MAP CONTOURING DUE TO WATER LEVEL MEASUREMENT ERROR.

REFERENCE

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
APRIL 22, 2020 POTENTIOMETRIC SURFACE MAP

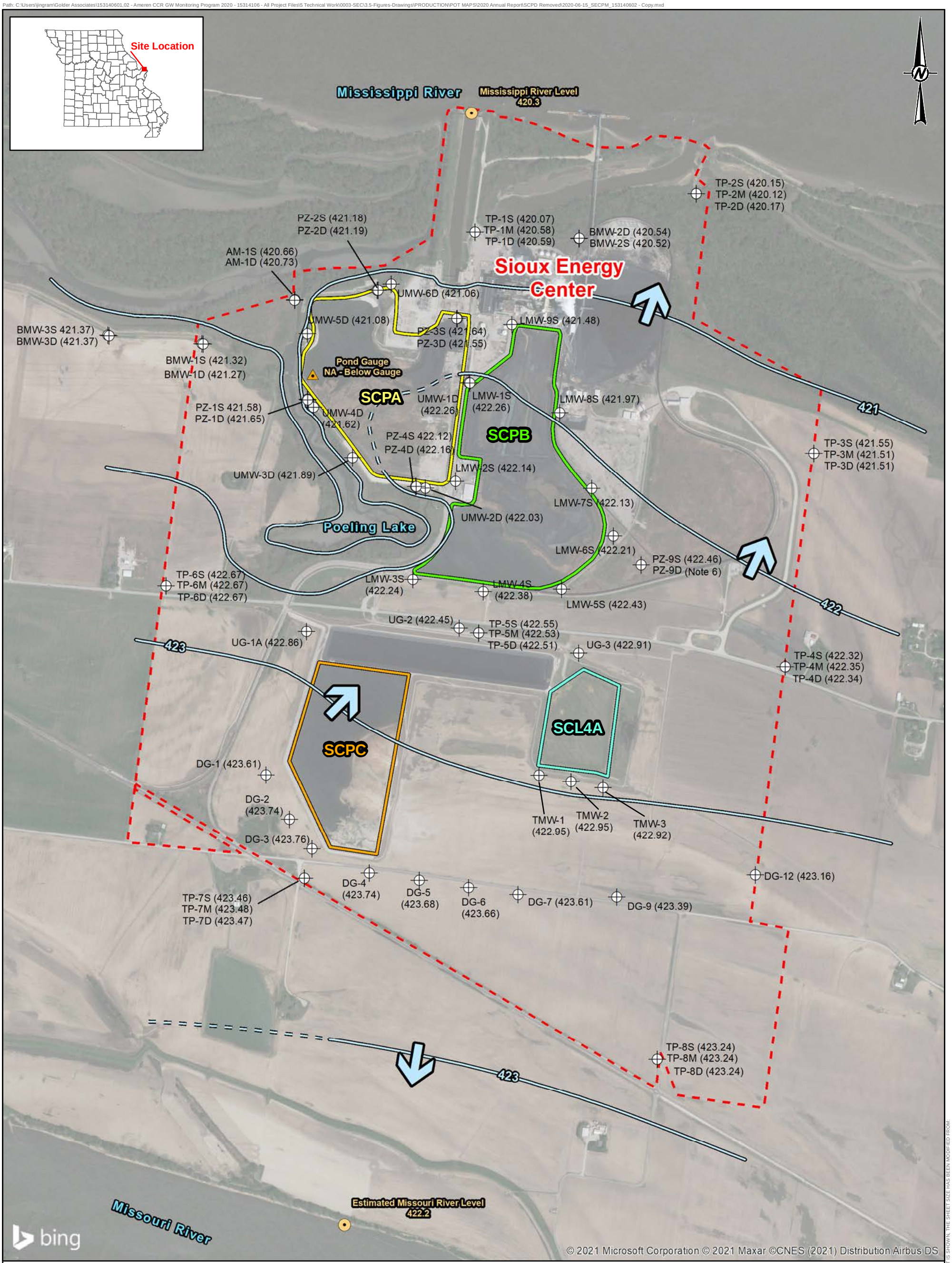
CONSULTANT
GOLDER

YYYY-MM-DD	2020-05-14
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No. 153-140602
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\jingram\Golder Associates\153140601,02 - Ameren CCR GW Monitoring Program 2020 - 15314106 - All Project Files\5 Technical Work\0003-SEC\3.5-Figures-Drawings\PRODUCTION\POT MAPS\2020 Annual Report\SCPD Removed\2020-06-15_SECPM_153140602 - Copy.mxd



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundmet
- SCL4A - Dry CCR Disposal Area
- Groundwater Flow Direction

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- SCPA Bottom Ash Surface Impoundment Gauge
- River Gauge Location
- Monitoring Well or Piezometer

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.) PZ-9D WAS NOT USED FOR POTENTIOMETRIC SURFACE MAP CONTOURING DUE TO WATER LEVEL MEASUREMENT ERROR.

REFERENCE

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
JUNE 15, 2020 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2020-06-24
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No. 153-140602
PHASE 0003
FIGURE **D3**

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

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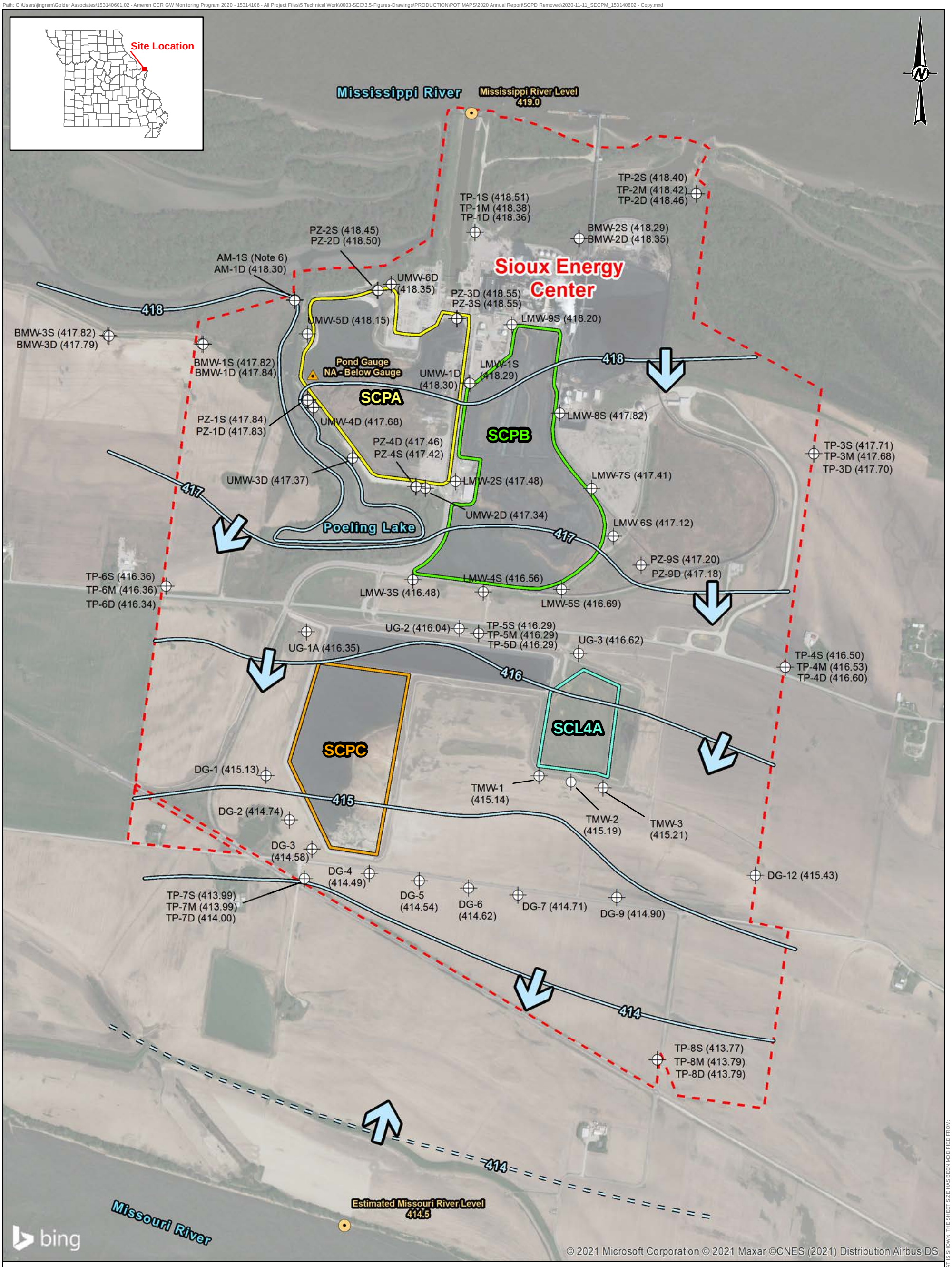


LEGEND

- Sioux Energy Center Property Boundary

CCR Units

- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundmet
- SCL4A - Dry CCR Disposal Area
- Groundwater Flow Direction

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- SCPA Bottom Ash Surface Impoundment Gauge
- River Gauge Location
- Monitoring Well or Piezometer

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.) AM-1S WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO WATER LEVEL MEASUREMENT ERROR.

REFERENCE

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
NOVEMBER 11, 2020 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2020-11-25
PREPARED	BTT
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No. 153-140602
PHASE 0003
FIGURE **D4**

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

APPENDIX E

Well Modification Records

MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI GEOLOGICAL SURVEY
RECONSTRUCTION RECORD

OFFICE USE ONLY

REF NO	DATE RECEIVED
00549237	06/04/2020

ROUTE	APPROVED	DATE	ENTERED	STATE CERT NO	CHECK NO.	REVENUE NO.
PCD4	NRSMITK4	07/08/2020	NRSMITK4	RO10539	2099	060420

INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR

OWNER NAME	TELEPHONE
AMEREN MISSOURI SIOUX ENERGY CENTER	314-957-3264

OWNER ADDRESS	CITY	STATE	ZIP CODE
11149 LINDBERGH BUSINESS COURT	ST LOUIS	MO	63123

ADDRESS OF WELL SITE (IF DIFFERENT THAN ABOVE)	CITY	STATE	ZIP CODE
8501 N STATE ROUTE 94	WEST ALTON	MO	

SITE NAME	WELL NUMBER	ORIGINAL DRILLER	DATE ORIGINALLY DRILLED
SIOUX ENERGY CENTER	UMW 1 S		

TYPE OF REPAIR	DATE WELL WAS RECONTRUCTED	WELL CERTIFICATION NUMBER OR REFERENCE NUMBER	VARIANCE NUMBER
☐ RAISED CASING ☐ LINING OF WELL ☐ DEEPENING OF WELL ☒ MONITORING	04/29/2020		

LOCATION OF WELL

LAT. 38 ° 54' 46.32"

LONG 90 ° 17' 30.75"

AREA AREA 5

ELEV 0

LEGAL LOCATION

____ 1/4 ____ 1/4 ____ 1/4 SEC. LG001838 TWN. ____ RNG. ____

COUNTY ST CHARLES

DRILLER NOTES

RECONSTRUCTION INFORMATION

USE OF WELL	CASING DIAMETER	STATIC WATER LEVEL	WELL CHLORINATED AFTER RECONSTRUCTION
☐ DOMESTIC ☐ IRRIGATION BEDROCK ☐ IRRIGATION UNCONONSOLIDATED ☒ MONITORING ☐ MULTI-FAMILY ☐ PUBLIC WATER SUPPLY ☐ OPEN LOOP WATER	0.0		☐ YES ☒ NO

MONITORING WELL INFORMATION

TYPE OF REPAIR	LENGTH OF RISER ADDED	RISER MATERIAL	ORIGINAL RISER MATERIAL	METHOD OF ATTACHMENT	TYPE OF SURFACE COMPLETION
☐ OVER-DRILL AND RECONSTRUCTED*				☐ THREADED ☐ WELD	
☐ INSTALL OR REPLACE SURFACE COMPLETION		☒ PLASTIC	☒ PLASTIC	☐ COUPLE ☐ FUSE	☐ ABOVE GROUND
☐ RAISE OR LOWER SURFACE ELAVATION	2.03 FT.	☐ STAINLESS STEEL	☐ STAINLESS STEEL	☐ GLUE ☒ OTHER	☒ FLUSH MOUNT

LINER INFORMATION

PURPOSE OF LINER	LENGTH	OUTSIDE DIAMETER	WEIGHT OR SDR #	MATERIAL
☐ USED ONLY TO HOLD BACK THE FORMATION ☐ USED TO SEAL OUT CONTAMINATION OR OTHER CONDITIONS ☐ USED TO SEAL OUT RUST	FT.	IN.		☐ STEEL ☐ PLASTIC

DEPTH TO TOP OF LINER	PACKER USED ON PVC LINER	DEPTH PACKERS SET
FT.	☐ NONE ☐ RUBBER BOOT	

POSITION OF SEAL	GROUT TYPE	NUMBER OF SACKS USED LBS PER SACK	METHOD OF GROUT INSTALLATION
☐ FULL LENGTH ☐ BOTTOM	CEMENT ☐ TYPE 1 ☐ HI-EARLY BENTONITE ☐ CHIPS ☐ GRANULAR ☐ PELLETS ☐ SLURRY		☐ AS LINER IS INSTALLED ☐ TREMIE

RAISED CASING INFORMATION

LENGTH ADDED	CASING MATERIAL	ORGINAL CASING MATERIAL	METHOD OF ATTACHMENT
FT.	☐ PLASTIC ☐ STEEL	☐ PLASTIC ☐ STEEL	☐ THREADED ☐ WELD ☐ COUPLE ☐ GLUE

DEEPENING OF WELL INFORMATION

DEPTH FROM	DEPTH TO	FORMATION AND YIELD DESCRIPTION

I HEREBY CERTIFY THAT THE WELL HEREIN DESCRIBED WAS RECONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE RECONSTRUCTION OF WELLS.

	PERMIT NUMBER	DATE
PRIMARY CONTRACTOR SIGNATURE x CHAD DUTTON	003652___	____
CONTRACTOR SIGNATURE x CHAD DUTTON	PERMIT NUMBER 003652___	DATE ____
APPRENTICE SIGNATURE x	PERMIT NUMBER	DATE

MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM
RECONSTRUCTION REGISTRATION REPORT

FOR OFFICE USE ONLY

REF NO.	DATE RECEIVED
549237	JUN 04 2020

ROUTE	APPROVED	DATE	ENTERED	STATE CERT. NO.	CHECK NO.	REVENUE NO.
PCD 4	CS	7-8-20	KRR	R010539	2099	CC00420

WELL OWNER INFORMATION

NAME	TELEPHONE NUMBER WITH AREA CODE
AMEREN Missouri Sioux Energy Center	(314) 957-3264

MAILING ADDRESS	CITY	STATE	ZIP CODE
11149 Lindbergh Business Court	St. Louis	MO	63123

PHYSICAL ADDRESS OF PROPERTY WHERE WELL IS LOCATED (IF DIFFERENT THAN MAILING ADDRESS)	CITY	EMAIL ADDRESS
8501 N State Route 94	West Alton	

GENERAL WELL INFORMATION

DATE WELL WAS RECONSTRUCTED	WELL CERTIFICATION OR REFERENCE NUMBER (IF KNOWN)	WELL NUMBER	VARIANCE NUMBER (IF ISSUED)	ORIGINAL DRILLER (If known)	DATE ORIGINALLY DRILLED (IF KNOWN)
4/29/2020	00512888	LMW-1S	n/a	Drabek / 004484-M	12/15/2015

TYPE OF REPAIR
☐ Raised casing ☐ Lining of well
☐ Deepening of well ☑ Monitoring well
☐ Well conversion

NAME OF SITE, BUSINESS, OR CLEANUP PROJECT: Sioux Energy Center

REGULATORY SITE ID NUMBER OF DNR/EPA PROJECT (IF APPLICABLE): n/a

LOCATION INFORMATION

Lat. 38 · 54 · 46.32 "
Long. 90 · 17 · 30.75 "

COUNTY: St Charles LG0838 Area 5

____ ¼ ____ ¼ ____ ¼ Section 19 Township 48 N Range 6 ☑ E ☐ W

DRILL AREA (OFFICE USE ONLY)

WATER WELL INFORMATION

TYPE OF WELL
☐ Domestic ☐ High yield bedrock ☐ High yield unconsolidated ☐ Multi-family ☐ Public water supply ☐ Open loop water ☐ Oil/gas well conversion to water well

CASING DIAMETER	CASING LENGTH (IF KNOWN)	WELL CASING SEAL OR CONNECTION	STATIC WATER LEVEL (IF KNOWN)	WELL CHLORINATED AFTER RECONSTRUCTION	DRILLER NOTES
in.	ft.	☐ Well seal ☐ Pitless unit ☐ Pitless adaptor	ft.	☐ Yes ☐ No	

MONITORING WELL INFORMATION

TYPE OF REPAIR	LENGTH OF RISER ADDED	RISER MATERIAL	ORIGINAL RISER MATERIAL	METHOD OF ATTACHMENT	TYPE OF SURFACE COMPLETION
☐ Over-drill and reconstructed* ☐ Install or replace surface completion ☑ Raise or lower surface elevation *Attach diagram showing well reconstruction details	-2.03 ft.	☑ Plastic ☐ Stainless steel	☑ Plastic ☐ Stainless steel	☐ Thread ☐ Weld ☐ Couple ☐ Fuse ☐ Glue ☑ Other CUT	☐ Above ground ☑ Flush mount

LINER INFORMATION

USE (Choose one)	LENGTH	OUTSIDE DIAMETER	WEIGHT (LB.) OR SDR#, SCH#	MATERIAL
☐ Hold back formation ☐ Prevent rust ☐ Seal out undesirable conditions	ft.	in.		☐ Plastic ☐ Steel

DEPTH TO TOP OF LINER	PACKER USED ON PVC LINER	DEPTH PACKERS SET
ft.	☐ Yes ☐ No	/ / ft.

POSITION OF SEAL	GROUT TYPE (CHOOSE ONE)	NUMBER OF SACKS USED	METHOD OF GROUT INSTALLATION
☐ Full length ☐ Bottom	CEMENT ☐ Type I ☐ Type III BENTONITE ☐ Chips ☐ Granular ☐ Pellets ☐ Slurry	LBS PER SACK	☐ Gravity ☐ Pressure tremie ☐ As liner is installed

RAISED CASING INFORMATION

LENGTH ADDED	CASING MATERIAL	ORIGINAL CASING MATERIAL	METHOD OF ATTACHMENT
ft.	☐ Plastic ☐ Steel	☐ Plastic ☐ Steel	☐ Thread ☐ Weld ☐ Couple ☐ Glue

DEEPENING OF WELL INFORMATION

DEPTH TO	DEPTH FROM	FORMATION AND YIELD DESCRIPTION**
		N/A

☐ **BORING LOG/WELL DIAGRAM ATTACHED

I hereby certify that the information herein described for this well is in accordance with the department of natural resources requirements. (All fields must be completed but only one signature is required.)

PRIMARY CONTRACTOR (If different than installation contractor)	PERMIT NUMBER	DATE
	003652-M	5/7/2020
WELL OR PUMP INSTALLATION CONTRACTOR	PERMIT NUMBER	DATE
WELL OR PUMP INSTALLATION APPRENTICE	PERMIT NUMBER	DATE

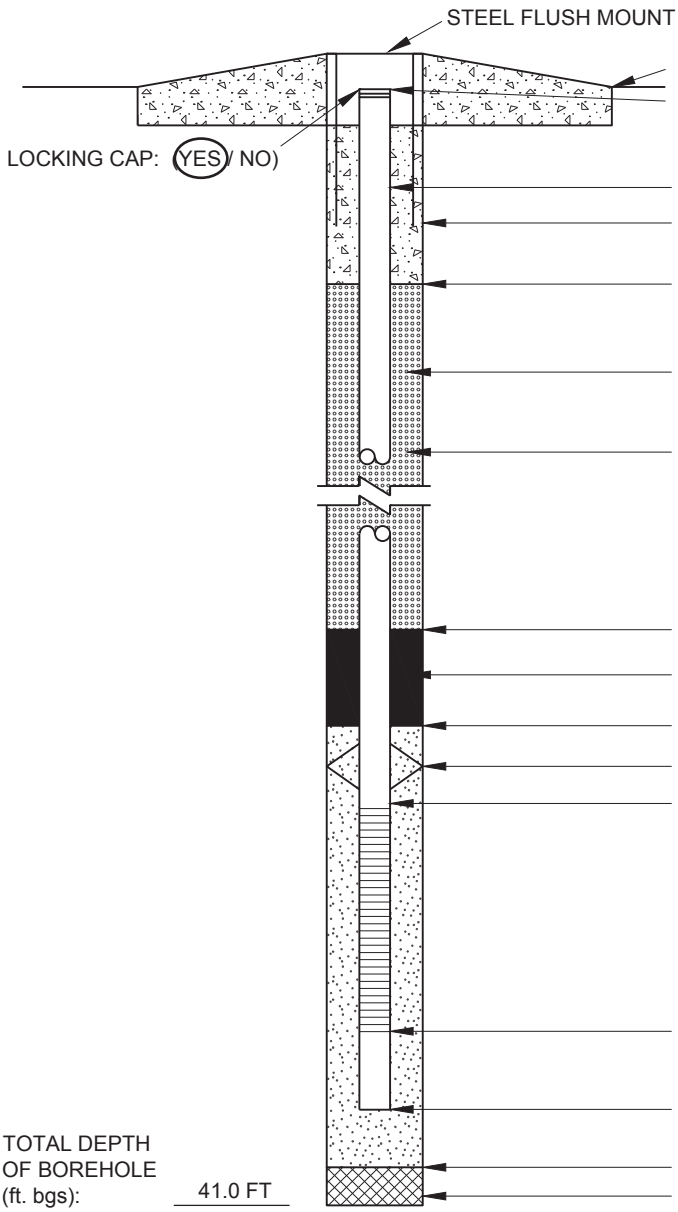
MO 780-1414 (01-18) SEND FORM WITH $50 FEE (FEE WAIVED FOR RAISING CASING ONLY) TO: MISSOURI DEPARTMENT OF NATURAL RESOURCES, MISSOURI GEOLOGICAL SURVEY, WELL INSTALLATION SECTION, PO BOX 250, ROLLA, MO 65402-0250 PHONE: 573-368-2165 FAX: 573-368-2317 EMAIL: welldrillers@dnr.mo.gov
RECORD (AND FEE) MAY BE SUBMITTED ONLINE: https://dnr.mo.gov/mowells/

GOLDER

FLUSH-MOUNT WELL CONSTRUCTION LOG

LMW-1S

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: 153141602.0003B
SITE NAME: SIOUX ENERGY CENTER		LOCATION: LMW-1S
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 445.4 FT MSL
GEOLOGIST: J. SUOZZI	NORTHING: 1121320.4	EASTING: 879427.6
DRILLER: J. DRABEK	STATIC WATER LEVEL: 24.72 FT BTOC	COMPLETION DATE: 12/15/2015
DRILLING COMPANY: CASCADE		DRILLING METHODS: SONIC



STEEL FLUSH MOUNT WELL PROTECTOR

LOCKING CAP: (YES / NO)

GROUND SURFACE ELEVATION: 445.4 FT MSL

TOP OF CASING ELEVATION: 445.07 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: 3/8" BENTONITE CHIPS - 2 BAGS

TYPE AND AMOUNT OF ANNULAR SEAL: HIGH SOLIDS BENTONITE 1.5 BAGS

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 24.0

TYPE AND AMOUNT OF BENTONITE SEAL: 3/8" BENTONITE CHIPS - 1 BAG

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 28.7 FINE: 27.5

CENTRALIZER (yes / (no)) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 30.6

TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC

SCREEN SLOT SIZE (in.): 0.010 IN

SIZE OF SAND PACK: COARSE: #1 FINE: #0

AMOUNT OF SAND: COARSE: 3 1/3 BAGS FINE: 1/3 BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 40.4

BOTTOM OF WELL DEPTH (ft. bgs): 40.8

BOTTOM OF FILTER PACK (ft. bgs): 40.8

TYPE AND AMOUNT OF BACKFILL: 0.2 FT - NATURAL CAVE IN

TOTAL DEPTH OF BOREHOLE (ft. bgs): 41.0 FT

ADDITIONAL NOTES: FT. BGS = FEET BELOW GROUND SURFACE. FT. MSL = FEET ABOVE MEAN SEA LEVEL. IN. = INCHES. 75 GALLONS OF WATER USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON APRIL 30, 2020. FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH. MODIFIED ON APRIL 29, 2020 BY BULLDOG DRILLING.

CHECKED BY: E. SCHNEIDER

DATE CHECKED: 1/21/2021

PREPARED BY: B. TALBERT

golder.com