REPORT

2024 Annual Groundwater Monitoring and Corrective Action Report

LCPB Surface Impoundment, Labadie Energy Center, Franklin County, Missouri, USA

January 31, 2025

Project Number: 23007-24

Submitted to:

Ameren Missouri
1901 Chouteau Avenue
St. Louis, Missouri 63103

Submitted by:

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

EXECUTIVE SUMMARY AND STATUS OF THE LCPB 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 LCPB Coal Combustion Residuals (CCR) Surface Impoundment at the Labadie Energy Center (LEC) is subject to the requirements of the CCR Rule. This Annual Report for the LCPB describes CCR Rule groundwater monitoring activities from January 1, 2024, through December 31, 2024, including verification results related to late 2023 sampling.

Throughout 2024, the LCPB 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 LCPB Sampling Events, Previous Year Verification, and Statistical Evaluations

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt	Parameters Collected	Verified SSIs	SSI Determination Date	ASD Completion Date
November 2023 Sampling Event	Detection Monitoring, November 15-20, 2023	January 25, 2024	Appendix III, Major Cations and Anions	**pH:** LMW-2S **Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-6S, LMW-7S, LMW-8S **Chloride:** LMW-2S, LMW-3S, LMW-4S, LMW-7S **Sulfate:** LMW-2S, LMW-3S, LMW-4S, LMW-7S, LMW-8S	April 24, 2024	July 23, 2024
	Verification Sampling, February 12, 2024	February 28, 2024	Detected Appendix III parameters (See Note 1)			
May 2024 Sampling Event	Detection Monitoring, May 17-23, 2024	June 26, 2024	Appendix III, Major Cations and Anions	**pH:** LMW-2S **Boron:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-6S, LMW-7S, LMW-8S **Chloride:** LMW-2S, LMW-3S, LMW-4S, LMW-7S **Fluoride:** LMW-3S **Sulfate:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-7S	September 24, 2024	December 23, 2024
	Verification Sampling July 25, 2024	August 9, 2024	Detected Appendix III parameters(See Note 1)			
October-November 2024 Sampling Event	Detection Monitoring, October 28 – November 1, 2024	December 23, 2024	Appendix III, Appendix IV, & Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2025.		

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

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

There were no changes made to the monitoring system in 2024 with no new wells being installed or decommissioned. Substantial closure of the LCPB was completed in 2020, with the geomembrane liner cover system completed on December 15, 2020. Additional aspects of closure were completed in spring 2021, and the CCR unit is now closed. The LCPB has now transitioned into the post-closure care requirements of the CCR Rule. As outlined in §257.104 (Post-closure Care Requirements) of the CCR Rule, the monitoring system and programs must be maintained for at least 30 years after the completion of closure.

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1.0 INSTALLATION OR DECOMISSIONING OF MONITORING WELLS

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

2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

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

Table 2 – Summary of Groundwater Sampling Dates

Sampling Event	Groundwater Monitoring Wells										Monitoring Program
	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	
	Date of Sample Collection										
February 2024 Verification Sampling	-	-	-	-	-	-	-	-	-	2/12/2024	Detection
May 2024 Detection Monitoring	5/23/2024	5/23/2024	5/21/2024	5/15/2024	5/17/2024	5/17/2024	5/20/2024	5/20/2024	5/20/2024	5/20/2024	Detection
July 2024 Verification Sampling	-	-	7/25/2024	-	7/25/2024	-	-	-	-	-	Detection
October-November2024 Detection Monitoring	10/28/2024	10/28/2024	10/30/2024	11/1/2024	10/28/2024	10/30/2024	10/31/2024	10/29/2024	10/29/2024	10/29/2024	Detection
Total Number of Samples	2	2	3	2	3	2	2	2	2	3	NA

Notes:

1) Detection Monitoring events tested for Appendix III Parameters.
2) Only analytes/wells that were detected above the prediction limit were tested during verification sampling.
3) "-" No sample collected.
4) NA – Not applicable.

2.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 15-20, 2023. The statistical analysis to evaluate for SSIs for the November 2023 event was completed in 2024 and is included in this report. A new initial exceedance of one Appendix III analyte in the November 2023 event triggered verification sampling and confirmed this new SSI. **Table 3** summarizes the results of the statistical analysis of the November 2023

Detection Monitoring event. Laboratory analytical data from each sampling event conducted in 2024 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 Alternative Source Demonstration (ASD) was completed for SSIs identified in November 2023 and is provided in **Appendix B**. This ASD demonstrates that SSIs at the monitoring wells around LCPB are not caused by the LCPB CCR unit and the LCPB CCR unit remains in Detection Monitoring.

Detection Monitoring samples were collected May 17-23, 2024, and testing was completed for all Appendix III analytes, as well as major cations and anions. New initial exceedances of two Appendix III analytes triggered verification sampling, which was completed July 25, 2024. The initial exceedances were confirmed as SSIs. **Table 4** summarizes the results of the statistical analysis of the May 2024 Detection Monitoring event, and laboratory analytical data are provided in **Appendix A**. Similar to previous results, SSIs reported for the monitoring data are not caused by the LCPB CCR Unit and an ASD for this sampling event data is provided in **Appendix C**.

A Detection Monitoring sampling event was completed October 28 – November 1, 2024 and testing was completed for all Appendix III analytes, as well as major cations and anions. The statistical analysis to evaluate for SSIs in October-November 2024 data was not completed in 2024, so the results of this analysis will be provided in the 2025 Annual Report. **Table 5** summarizes the results of the October-November 2024 Detection Monitoring event, and laboratory analytical data are provided in **Appendix A**.

2.2 Groundwater Elevation, Flow Rate and Direction

To meet the requirements of §257.93(c), water level measurements were taken at all monitoring wells prior to the start of groundwater purging and sampling. Static water levels were measured within a 24-hour period in each monitoring well using an electronic water level indicator.

Groundwater elevations were used to generate potentiometric surface maps included in **Appendix D**. As shown on the potentiometric surface maps, groundwater flow direction within the uppermost aquifer is dynamic and influenced by seasonal changes in the water level in the adjacent Missouri River. Water flows into and out of the alluvial aquifer because of fluctuating river water levels that produce “bank recharge” and “bank discharge” conditions. Overall, based on the potentiometric surface maps, a general flow direction from the south/southwest (bluffs area) to the north/northeast (Missouri River) is observed under normal river conditions. However, during periods of high river levels, groundwater flow can temporarily reverse, as was observed in May 2024. During these times of high river stage and temporary flow direction changes, horizontal groundwater gradients generally decrease, and little net movement of groundwater occurs. Based on quarterly water level measurements, groundwater across the LEC exhibited typical flow towards the Missouri River throughout much of 2024, except in May, when flow was directed away from the river to the southeast.

Groundwater flow direction and hydraulic gradient were estimated for the alluvial aquifer wells at the Labadie Energy Center (LEC) using commercially available software to evaluate data since 2016. Results from this assessment indicate that while groundwater flow direction is variable, the overall net groundwater flow in the alluvial aquifer at the LEC is from the bluffs toward the river. Horizontal gradients calculated by the program range from 0.0001 to 0.0009 feet/foot with an estimated net annual groundwater movement of approximately 19 feet per year in the prevailing downgradient direction.

2.3 Sampling Issues

Following the verification sampling event completed in July 2024, the laboratory (Pace Analytical) notified Rocksmith of a shipping delay between laboratories that caused several sample bottles to arrive outside of temperature control limits for sulfate. Affected samples were flagged as estimates during data validation procedures, which are documented in **Appendix A**. No other notable sampling issues were encountered at the LCPB in 2024.

3.0 ACTIVITIES PLANNED FOR 2025

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

Tables

Table 3
November 2023 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S
November 2023 Detection Monitoring Event												
DATE	NA	NA	11/16/2023	11/16/2023	11/16/2023	11/20/2023	11/20/2023	11/17/2023	11/16/2023	11/15/2023	11/15/2023	11/16/2023
pH	SU	6.416-7.307	6.71	7.04	7.16	9.54	7.12	6.88	6.79	6.89	6.82	7.02
BORON, TOTAL	µg/L	141.2	113	50.8 J	1,060	3,450	4,220	3,470	55.0 J	806	6,580	1,550
CALCIUM, TOTAL	µg/L	221,000	208,000	150,000	103,000	84,300	109,000	178,000	154,000	131,000	184,000	118,000
CHLORIDE, TOTAL	mg/L	7.564	5.3	2.8	4.0	15.0	21.1	60.7	3.9	3.2	13.5	3.9
FLUORIDE, TOTAL	mg/L	0.2154	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	75.18	72.4	38.3	41.2	337	92.3	116	7.9 J	31.6	192	79.2
TOTAL DISSOLVED SOLIDS	mg/L	828	692	471	348	533 J	671	722	434	479 J	607	462
February 2024 Verification Sampling Event												
DATE	NA	NA										2/12/2024
pH	SU	6.416-7.307										
BORON, TOTAL	µg/L	141.2										
CALCIUM, TOTAL	µg/L	221,000										
CHLORIDE, TOTAL	mg/L	7.564										
FLUORIDE, TOTAL	mg/L	0.2154										
SULFATE, TOTAL	mg/L	75.18										113 J
TOTAL DISSOLVED SOLIDS	mg/L	828										

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

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

Table 4
May 2024 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S
May 2024 Detection Monitoring Event												
DATE	NA	NA	5/23/2024	5/23/2024	5/21/2024	5/15/2024	5/17/2024	5/17/2024	5/20/2024	5/20/2024	5/20/2024	5/20/2024
pH	SU	6.416-7.307	6.72	6.98	7.03	9.55	7.27	7.09	6.99	7.12	7.13	7.29
BORON, TOTAL	µg/L	141.2	92.3 J	53.5 J	1,860	4,070	3,920	7,850	61.6 J	1,170	8,000	1,510
CALCIUM, TOTAL	µg/L	221,000	193,000	128,000	163,000	64,200	73,700	96,100	165,000	105,000	95,400	51,800
CHLORIDE, TOTAL	mg/L	7.564	6.9	2.9	4.7	19.8	22.2	25.8	2.7	2.8	16.4	1.8
FLUORIDE, TOTAL	mg/L	0.2154	ND	ND	ND	ND	0.35	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	75.18	65.6	41.9	180	206	210 J	197	29.0	20.1	243	39.8
TOTAL DISSOLVED SOLIDS	mg/L	828	675	502	637	409	552 J	555	491	378	602	260
July 2024 Verification Sampling Event												
DATE	NA	NA			7/25/2024		7/25/2024					
pH	SU	6.416-7.307										
BORON, TOTAL	µg/L	141.2										
CALCIUM, TOTAL	µg/L	221,000										
CHLORIDE, TOTAL	mg/L	7.564										
FLUORIDE, TOTAL	mg/L	0.2154					0.28					
SULFATE, TOTAL	mg/L	75.18			92.3 J							
TOTAL DISSOLVED SOLIDS	mg/L	828										

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

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

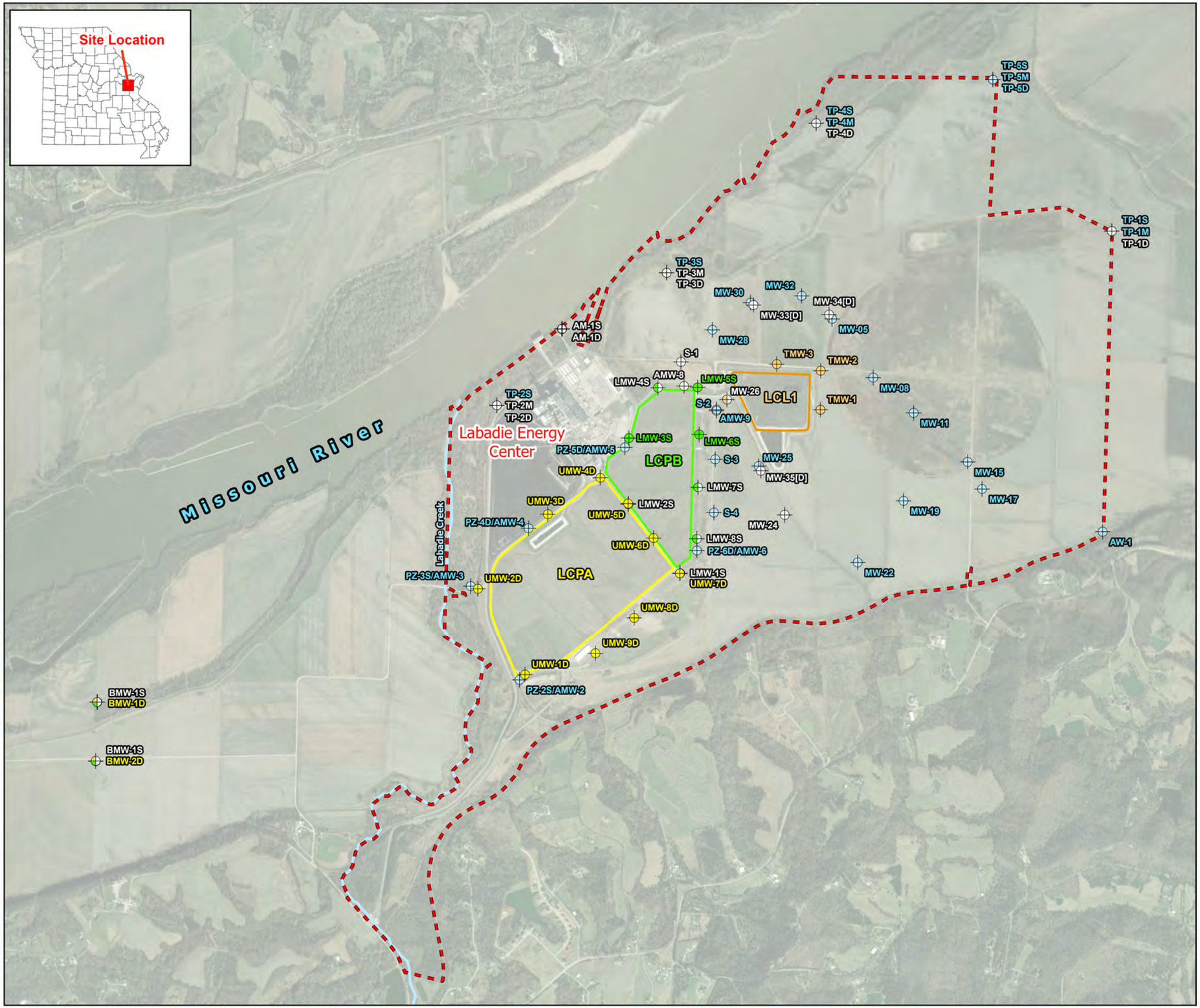
Table 5
October-November 2024 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S
October-November 2024 Detection Monitoring Event											
DATE	NA	10/28/2024	10/28/2024	10/30/2024	11/1/2024	10/28/2024	10/30/2024	10/31/2024	10/29/2024	10/29/2024	10/29/2024
pH	SU	6.47	6.92	6.94	9.56	6.88	6.77	6.75	6.66	6.79	6.97
BORON, TOTAL	µg/L	84.8 J	45.4 J	772	3,490	4,120	2,950	88.8 J	761	4,870	721
CALCIUM, TOTAL	µg/L	202,000	121,000	99,700	73,800	99,000	168,000	152,000 J	174,000	162,000	82,300
CHLORIDE, TOTAL	mg/L	4.5	1.8	2.1	20.0	23.3	86.4	3.5 J	3.5	9.2	1.2
FLUORIDE, TOTAL	mg/L	ND	ND	ND	ND	0.29	ND	ND	ND	ND	0.21
SULFATE, TOTAL	mg/L	95.1	13.7	22.5	326 J	198	106	7.4	40.3	149	24.7
TOTAL DISSOLVED SOLIDS	mg/L	744	436	364	506	667	777	453	645	697	349

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.

Prepared By: JTR
Checked By: VAH
Reviewed By: MNH

Figures



TITLE

LABADIE ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND MONITORING WELL LOCATION MAP

Legend

Approximate Property Boundary

Labadie Energy Center CCR Units

- LCPA - Closed Bottom Ash Surface Impoundment
- LCPB - Closed Fly Ash Surface Impoundment
- LCL1 - Utility Waste Landfill Cell 1

Monitoring Well Network

- Corrective Action Monitoring Well
- LCPA Monitoring Well
- LCPB Monitoring Well
- LCPB and Corrective Action Monitoring Well
- LCL1 Monitoring Well
- LCL1 and Corrective Action Monitoring Well
- Background Well Used for LCPA, Corrective Action, LCPB, and LCL1 Monitoring
- Monitoring Well Used for Water Level Elevation Measurements Only

NOTES

1. All locations and boundaries are approximate.

REFERENCES

1. Zahner and Associates, Inc. 2016. Lot Consolidation Plat of "Labadie Energy Center" - Prepared for Ameren Missouri. Revised June 15, 2016.
2. USGS (United States Geological Survey), National Water Information System, USGS Gauge 06935550 Missouri River near Labadie, MO.

0 5001,000 2,000 3,000 4,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	JSI	YYYY-MM-DD	2024-01-08
PREPARED	JSI	PROJECT No	23007-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE 1

Path: C:\Users\JackRasmussen\Rocksmith Geoengineering LLC\23007 - Ameren GW - Documents\400 - Drawings, Figures\4.1 LEO\4.1.2 - Production\Other Maps\Annual Report Figure 1.aprx

Appendix A
Laboratory Analytical Data

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

February 28, 2024

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

RE: Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on February 14, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.

Pace Analytical Services, LLC
9608 Loiret Blvd.
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CERTIFICATIONS

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Pace Analytical Services Kansas

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

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60447276001	**L-LMW-8S**	Water	02/12/24 12:08	02/14/24 05:44
60447276002	**L-MW-DUP-1**	Water	02/12/24 00:00	02/14/24 05:44
60447276003	**L-MW-FB-1**	Water	02/12/24 11:47	02/14/24 05:44

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60447276001	**L-LMW-8S**	EPA 300.0	RKA	1	PASI-K
60447276002	**L-MW-DUP-1**	EPA 300.0	RKA	1	PASI-K
60447276003	**L-MW-FB-1**	EPA 300.0	RKA	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Sample: L-LMW-8S **Lab ID: 60447276001** Collected: 02/12/24 12:08 Received: 02/14/24 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**113**	mg/L	10.0	5.5	10		02/28/24 09:15	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Sample: L-MW-DUP-1 **Lab ID: 60447276002** Collected: 02/12/24 00:00 Received: 02/14/24 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**99.8**	mg/L	10.0	5.5	10		02/28/24 10:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Sample: L-MW-FB-1 **Lab ID: 60447276003** Collected: 02/12/24 11:47 Received: 02/14/24 05:44 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Sulfate	**<0.55**	mg/L	1.0	0.55	1		02/27/24 17:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

QC Batch: 884610
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: 60447276001, 60447276002, 60447276003

METHOD BLANK: 3501962 Matrix: Water
Associated Lab Samples: 60447276001, 60447276002, 60447276003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	02/27/24 10:34	

METHOD BLANK: 3502714 Matrix: Water
Associated Lab Samples: 60447276001, 60447276002, 60447276003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.55	1.0	0.55	02/28/24 08:37	

LABORATORY CONTROL SAMPLE: 3501963

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

LABORATORY CONTROL SAMPLE: 3502715

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: 3501964 3501965

Parameter	Units	60447274001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	30.1	5	5	35.9	35.9	116	117	80-120	0	15	E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502025 3502026

Parameter	Units	60447276001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	113	50	50	190	213	155	201	80-120	12	15	E,M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

SAMPLE DUPLICATE: 3502024

Parameter	Units	60447274001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	30.1	29.8	1	15	E

SAMPLE DUPLICATE: 3502027

Parameter	Units	60447276001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	113	103	9	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
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 LCPB-VERIFICATION SAMP.
Pace Project No.: 60447276

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60447276001	**L-LMW-8S**	EPA 300.0	884610		
60447276002	**L-MW-DUP-1**	EPA 300.0	884610		
60447276003	**L-MW-FB-1**	EPA 300.0	884610		

WO# : 60447276

60447276

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): **As-read** 0.6 **Corr. Factor** -0.3 **Corrected** 0.3

Date and initials of person examining contents: JV 2/16/24

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Mark Haddock
Copy To:	Jeffery Ingram, Grant Morey
Purchase Order No.:	COC #2
Project Name:	Ameren LCPB - Verification Sampling
Project Number:	COC#2

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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	Requested Analysis Filtered (Y/N) Y/N	Analysis Test: Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	L-LMW-8S	WT	G			2-12-24	1208		1	1								N	✓		60447276
2	L-LMW-DUP-1	WT	G				—		1	1								N	✓		
3	L-LMW-FB-1	WT	G				1147		1	1								N	✓		
4	L-LMW-MS-1	WT	G				1208		1	1								N	✓		Collected @ L-LMW-8S
5	L-LMW-MSD-1	WT	G				1208		1	1								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			
	[signature] / Rocksmith	2-13-24	1545	[signature] PACE	2/14	0544	0.3	✓	✓	✓

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/13/24

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

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

Client: Rocksmith Geeng Profile # 15856-1

Site: Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																				3											
2	↓																				1											
3	↓																				1											
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

Work Order Number: 60447276

Memorandum

March 27, 2024

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23007
CC:	Mark Haddock, Jeffrey Ingram		
From:	Grant Morey	**Email:**	Grant.Morey@Rocksmithgeo.com
RE:	**Data Validation Summary, Labadie Energy Center – LCPB Verification – Data Package 60447276**		

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

- When a matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren LCPB Verification
Project Number: 23007
Reviewer: G. Morey
Validation Date: 3/27/2024

Laboratory: Pace Analytical
SDG #: 60447276
Analytical Method (type and no.): EPA 300.0 (Sulfate)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names L-LMW-8S, L-MW-DUP-1, L-MW-FB-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			2/12/2024
b) Sampling team indicated?	x			GTM
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?		x		

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	L-MW-DUP-1
b) Were field dup. precision criteria met (note RPD)?	☒	☐	☐	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☒	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☒	☐	☐	

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

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

Comments/Notes:

General:

Sulfate dilutions noted in two samples, no qualification necessary.

Duplicates:

Lab duplicate max RPD for sulfate: 15%.

MS/MSD: 3502025/3502026: MS/MSD recoveries high for sulfate, associated with sample -001, result qualified as estimate.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-8S	Sulfate	113	J+	MS/MSD recovery high

Signature: Grant Morey Date: 3/27/2024

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

January 07, 2025

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

RE: Project: AMEREN LCPB
Pace Project No.: 60453238

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between May 17, 2024 and May 24, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

REV-1, Report revised to remove parameters not required under the CCR Rule.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren

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

CERTIFICATIONS

Project: AMEREN LCPB
Pace Project No.: 60453238

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

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: AMEREN LCPB
Pace Project No.: 60453238

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60453238001	**L-LMW-3S**	Water	05/17/24 09:20	05/18/24 05:00
60453238002	**L-LMW-MS-1**	Water	05/17/24 09:20	05/18/24 05:00
60453238003	**L-LMW-MSD-2**	Water	05/17/24 09:20	05/18/24 05:00
60453238004	**L-LMW-5S**	Water	05/20/24 15:47	05/22/24 05:50
60453238005	**L-LMW-6S**	Water	05/20/24 11:54	05/22/24 05:50
60453238006	**L-LMW-DUP-1**	Water	05/20/24 00:00	05/22/24 05:50
60453238007	**L-LMW-FB-1**	Water	05/20/24 11:18	05/22/24 05:50
60453167020	**L-LMW-1S**	Water	05/21/24 15:15	05/24/24 05:00
60453167001	**L-LMW-2S**	Water	05/15/24 13:02	05/17/24 05:30
60453167006	**L-LMW-4S**	Water	05/17/24 12:32	05/18/24 05:00
60453167010	**L-LMW-7S**	Water	05/20/24 13:05	05/22/24 05:50
60453167009	**L-LMW-8S**	Water	05/20/24 14:44	05/22/24 05:50
60453167018	**L-BMW-1S**	Water	05/23/24 12:45	05/24/24 05:00
60453167019	**L-BMW-2S**	Water	05/23/24 09:28	05/24/24 05:00

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

SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60453238

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60453238001	**L-LMW-3S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453238004	**L-LMW-5S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453238005	**L-LMW-6S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453238006	**L-LMW-DUP-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453238007	**L-LMW-FB-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167020	**L-LMW-1S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167001	**L-LMW-2S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167006	**L-LMW-4S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167010	**L-LMW-7S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167009	**L-LMW-8S**	EPA 200.7	JXD	7	PASI-K

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60453238

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167018	**L-BMW-1S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K
60453167019	**L-BMW-2S**	EPA 200.7	JXD	7	PASI-K
		SM 2320B	SR1	1	PASI-K
		SM 2540C	KVI	1	PASI-K
		EPA 300.0	PL	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-3S **Lab ID: 60453238001** Collected: 05/17/24 09:20 Received: 05/18/24 05:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3920**	ug/L	100	6.4	1	05/24/24 15:18	06/04/24 11:41	7440-42-8	
Calcium	**73700**	ug/L	200	26.9	1	05/24/24 15:18	06/04/24 11:41	7440-70-2	
Iron	**5210**	ug/L	50.0	9.1	1	05/24/24 15:18	06/04/24 11:41	7439-89-6	
Magnesium	**7160**	ug/L	50.0	20.1	1	05/24/24 15:18	06/04/24 11:41	7439-95-4	
Manganese	**494**	ug/L	5.0	0.39	1	05/24/24 15:18	06/04/24 11:41	7439-96-5	
Potassium	**7560**	ug/L	500	69.7	1	05/24/24 15:18	06/04/24 11:41	7440-09-7	
Sodium	**97700**	ug/L	500	115	1	05/24/24 15:18	06/04/24 11:41	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**180**	mg/L	20.0	10.5	1		05/31/24 18:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**552**	mg/L	10.0	10.0	1		05/21/24 11:26		D6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.2**	mg/L	5.0	2.6	5		06/06/24 11:19	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.12	1		06/06/24 10:12	16984-48-8	N2
Sulfate	**210**	mg/L	50.0	27.5	50		06/10/24 19:39	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-5S **Lab ID: 60453238004** Collected: 05/20/24 15:47 Received: 05/22/24 05:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**61.6J**	ug/L	100	6.4	1	06/06/24 15:48	06/11/24 09:05	7440-42-8	
Calcium	**165000**	ug/L	200	26.9	1	06/06/24 15:48	06/11/24 09:05	7440-70-2	
Iron	**40.2J**	ug/L	50.0	9.1	1	06/06/24 15:48	06/11/24 09:05	7439-89-6	B
Magnesium	**16200**	ug/L	50.0	20.1	1	06/06/24 15:48	06/11/24 09:05	7439-95-4	
Manganese	**15.3**	ug/L	5.0	0.39	1	06/06/24 15:48	06/11/24 09:05	7439-96-5	
Potassium	**3410**	ug/L	500	69.7	1	06/06/24 15:48	06/11/24 09:05	7440-09-7	
Sodium	**7120**	ug/L	500	115	1	06/06/24 15:48	06/11/24 09:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**472**	mg/L	20.0	10.5	1		05/31/24 18:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**491**	mg/L	10.0	10.0	1		05/22/24 15:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.7**	mg/L	1.0	0.53	1		06/06/24 12:58	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/06/24 12:58	16984-48-8	N2
Sulfate	**29.0**	mg/L	1.0	0.55	1		06/06/24 12:58	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-6S **Lab ID: 60453238005** Collected: 05/20/24 11:54 Received: 05/22/24 05:50 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	**1170**	ug/L	100	6.4	1	06/06/24 15:48	06/11/24 09:07	7440-42-8	
Calcium	**105000**	ug/L	200	26.9	1	06/06/24 15:48	06/11/24 09:07	7440-70-2	
Iron	**17800**	ug/L	50.0	9.1	1	06/06/24 15:48	06/11/24 09:07	7439-89-6	
Magnesium	**19600**	ug/L	50.0	20.1	1	06/06/24 15:48	06/11/24 09:07	7439-95-4	
Manganese	**1250**	ug/L	5.0	0.39	1	06/06/24 15:48	06/11/24 09:07	7439-96-5	
Potassium	**4810**	ug/L	500	69.7	1	06/06/24 15:48	06/11/24 09:07	7440-09-7	
Sodium	**11000**	ug/L	500	115	1	06/06/24 15:48	06/11/24 09:07	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**358**	mg/L	40.0	21.0	2		05/31/24 18:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**378**	mg/L	10.0	10.0	1		05/22/24 15:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.8**	mg/L	1.0	0.53	1		06/06/24 13:13	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/06/24 13:13	16984-48-8	N2
Sulfate	**20.1**	mg/L	10.0	5.5	10		06/06/24 14:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-DUP-1 **Lab ID: 60453238006** Collected: 05/20/24 00:00 Received: 05/22/24 05:50 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	**60.7J**	ug/L	100	6.4	1	06/06/24 15:48	06/11/24 09:09	7440-42-8	
Calcium	**165000**	ug/L	200	26.9	1	06/06/24 15:48	06/11/24 09:09	7440-70-2	
Iron	**37.1J**	ug/L	50.0	9.1	1	06/06/24 15:48	06/11/24 09:09	7439-89-6	B
Magnesium	**16200**	ug/L	50.0	20.1	1	06/06/24 15:48	06/11/24 09:09	7439-95-4	
Manganese	**15.2**	ug/L	5.0	0.39	1	06/06/24 15:48	06/11/24 09:09	7439-96-5	
Potassium	**3400**	ug/L	500	69.7	1	06/06/24 15:48	06/11/24 09:09	7440-09-7	
Sodium	**7110**	ug/L	500	115	1	06/06/24 15:48	06/11/24 09:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**489**	mg/L	20.0	10.5	1		05/31/24 19:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**470**	mg/L	10.0	10.0	1		05/22/24 15:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.6**	mg/L	1.0	0.53	1		06/06/24 14:34	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/06/24 14:34	16984-48-8	N2
Sulfate	**26.4**	mg/L	5.0	2.8	5		06/06/24 14:49	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-FB-1 **Lab ID: 60453238007** Collected: 05/20/24 11:18 Received: 05/22/24 05:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<6.4**	ug/L	100	6.4	1	06/06/24 15:48	06/11/24 09:11	7440-42-8	
Calcium	**40.7J**	ug/L	200	26.9	1	06/06/24 15:48	06/11/24 09:11	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	06/06/24 15:48	06/11/24 09:11	7439-89-6	
Magnesium	**<20.1**	ug/L	50.0	20.1	1	06/06/24 15:48	06/11/24 09:11	7439-95-4	
Manganese	**4.0J**	ug/L	5.0	0.39	1	06/06/24 15:48	06/11/24 09:11	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	06/06/24 15:48	06/11/24 09:11	7440-09-7	
Sodium	**<115**	ug/L	500	115	1	06/06/24 15:48	06/11/24 09:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		06/01/24 15:13		
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		05/22/24 15:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		06/06/24 15:04	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/06/24 15:04	16984-48-8	N2
Sulfate	**<0.55**	mg/L	1.0	0.55	1		06/06/24 15:04	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-1S **Lab ID: 60453167020** Collected: 05/21/24 15:15 Received: 05/24/24 05:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**1860**	ug/L	100	6.4	1	06/05/24 10:25	06/07/24 09:38	7440-42-8	
Calcium	**163000**	ug/L	200	26.9	1	06/05/24 10:25	06/07/24 09:38	7440-70-2	
Iron	**4240**	ug/L	50.0	9.1	1	06/05/24 10:25	06/07/24 09:38	7439-89-6	
Magnesium	**28600**	ug/L	50.0	20.1	1	06/05/24 10:25	06/07/24 09:38	7439-95-4	
Manganese	**1680**	ug/L	5.0	0.39	1	06/05/24 10:25	06/07/24 09:38	7439-96-5	
Potassium	**4660**	ug/L	500	69.7	1	06/05/24 10:25	06/07/24 09:38	7440-09-7	
Sodium	**9830**	ug/L	500	115	1	06/05/24 10:25	06/07/24 09:38	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**397**	mg/L	20.0	10.5	1		05/28/24 14:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**637**	mg/L	10.0	10.0	1		05/28/24 10:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**4.7**	mg/L	1.0	0.53	1		06/12/24 08:38	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 08:38	16984-48-8	N2
Sulfate	**180**	mg/L	10.0	5.5	10		06/12/24 08:53	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-2S **Lab ID: 60453167001** Collected: 05/15/24 13:02 Received: 05/17/24 05:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**4070**	ug/L	100	6.4	1	05/24/24 09:30	05/31/24 11:46	7440-42-8	
Calcium	**64200**	ug/L	200	26.9	1	05/24/24 09:30	05/31/24 11:46	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	05/24/24 09:30	05/31/24 11:46	7439-89-6	
Magnesium	**90.5**	ug/L	50.0	20.1	1	05/24/24 09:30	05/31/24 11:46	7439-95-4	
Manganese	**1.1J**	ug/L	5.0	0.39	1	05/24/24 09:30	05/31/24 11:46	7439-96-5	
Potassium	**9010**	ug/L	500	69.7	1	05/24/24 09:30	05/31/24 11:46	7440-09-7	
Sodium	**66100**	ug/L	500	115	1	05/24/24 09:30	05/31/24 11:46	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**47.8**	mg/L	20.0	10.5	1		05/24/24 17:07		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**409**	mg/L	10.0	10.0	1		05/20/24 10:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.8**	mg/L	1.0	0.53	1		06/10/24 15:01	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/10/24 15:01	16984-48-8	N2
Sulfate	**206**	mg/L	20.0	11.0	20		06/10/24 15:16	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-4S **Lab ID: 60453167006** Collected: 05/17/24 12:32 Received: 05/18/24 05:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**7850**	ug/L	100	6.4	1	05/24/24 15:18	06/04/24 11:39	7440-42-8	
Calcium	**96100**	ug/L	200	26.9	1	05/24/24 15:18	06/04/24 11:39	7440-70-2	
Iron	**8260**	ug/L	50.0	9.1	1	05/24/24 15:18	06/04/24 11:39	7439-89-6	
Magnesium	**18800**	ug/L	50.0	20.1	1	05/24/24 15:18	06/04/24 11:39	7439-95-4	
Manganese	**1500**	ug/L	5.0	0.39	1	05/24/24 15:18	06/04/24 11:39	7439-96-5	
Potassium	**6120**	ug/L	500	69.7	1	05/24/24 15:18	06/04/24 11:39	7440-09-7	
Sodium	**91000**	ug/L	500	115	1	05/24/24 15:18	06/04/24 11:39	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**289**	mg/L	20.0	10.5	1		05/24/24 17:41		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**555**	mg/L	10.0	10.0	1		05/21/24 11:26		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**25.8**	mg/L	20.0	10.5	20		06/10/24 18:14	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/10/24 18:00	16984-48-8	N2
Sulfate	**197**	mg/L	20.0	11.0	20		06/10/24 18:14	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-7S **Lab ID: 60453167010** Collected: 05/20/24 13:05 Received: 05/22/24 05:50 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	**8000**	ug/L	100	6.4	1	05/31/24 09:05	06/05/24 16:32	7440-42-8	
Calcium	**95400**	ug/L	200	26.9	1	05/31/24 09:05	06/05/24 16:32	7440-70-2	
Iron	**2960**	ug/L	50.0	9.1	1	05/31/24 09:05	06/05/24 16:32	7439-89-6	
Magnesium	**20100**	ug/L	50.0	20.1	1	05/31/24 09:05	06/05/24 16:32	7439-95-4	
Manganese	**758**	ug/L	5.0	0.39	1	05/31/24 09:05	06/05/24 16:32	7439-96-5	
Potassium	**6070**	ug/L	500	69.7	1	05/31/24 09:05	06/05/24 16:32	7440-09-7	
Sodium	**70300**	ug/L	500	115	1	05/31/24 09:05	06/05/24 16:32	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**229**	mg/L	20.0	10.5	1		05/28/24 13:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**602**	mg/L	10.0	10.0	1		05/22/24 15:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**16.4**	mg/L	1.0	0.53	1		06/11/24 21:30	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/11/24 21:30	16984-48-8	N2
Sulfate	**243**	mg/L	20.0	11.0	20		06/11/24 21:47	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-LMW-8S **Lab ID: 60453167009** Collected: 05/20/24 14:44 Received: 05/22/24 05:50 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	**1510**	ug/L	100	6.4	1	05/31/24 09:05	06/05/24 16:30	7440-42-8	
Calcium	**51800**	ug/L	200	26.9	1	05/31/24 09:05	06/05/24 16:30	7440-70-2	
Iron	**1470**	ug/L	50.0	9.1	1	05/31/24 09:05	06/05/24 16:30	7439-89-6	
Magnesium	**8700**	ug/L	50.0	20.1	1	05/31/24 09:05	06/05/24 16:30	7439-95-4	
Manganese	**466**	ug/L	5.0	0.39	1	05/31/24 09:05	06/05/24 16:30	7439-96-5	
Potassium	**3790**	ug/L	500	69.7	1	05/31/24 09:05	06/05/24 16:30	7440-09-7	
Sodium	**28300**	ug/L	500	115	1	05/31/24 09:05	06/05/24 16:30	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**214**	mg/L	20.0	10.5	1		05/28/24 13:47		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**260**	mg/L	5.0	5.0	1		05/22/24 15:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1.8**	mg/L	1.0	0.53	1		06/11/24 20:55	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/11/24 20:55	16984-48-8	N2
Sulfate	**39.8**	mg/L	20.0	11.0	20		06/11/24 21:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-BMW-1S **Lab ID: 60453167018** Collected: 05/23/24 12:45 Received: 05/24/24 05:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**92.3J**	ug/L	100	6.4	1	06/05/24 10:25	06/07/24 09:34	7440-42-8	
Calcium	**193000**	ug/L	200	26.9	1	06/05/24 10:25	06/07/24 09:34	7440-70-2	
Iron	**31200**	ug/L	50.0	9.1	1	06/05/24 10:25	06/07/24 09:34	7439-89-6	
Magnesium	**43600**	ug/L	50.0	20.1	1	06/05/24 10:25	06/07/24 09:34	7439-95-4	
Manganese	**2490**	ug/L	5.0	0.39	1	06/05/24 10:25	06/07/24 09:34	7439-96-5	
Potassium	**5520**	ug/L	500	69.7	1	06/05/24 10:25	06/07/24 09:34	7440-09-7	
Sodium	**15500**	ug/L	500	115	1	06/05/24 10:25	06/07/24 09:34	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**690**	mg/L	40.0	21.0	2		05/28/24 14:44		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**675**	mg/L	13.3	13.3	1		05/28/24 14:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**6.9**	mg/L	1.0	0.53	1		06/12/24 05:21	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 05:21	16984-48-8	N2
Sulfate	**65.6**	mg/L	10.0	5.5	10		06/12/24 05:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60453238

Sample: L-BMW-2S **Lab ID: 60453167019** Collected: 05/23/24 09:28 Received: 05/24/24 05:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**53.5J**	ug/L	100	6.4	1	06/05/24 10:25	06/07/24 09:36	7440-42-8	
Calcium	**128000**	ug/L	200	26.9	1	06/05/24 10:25	06/07/24 09:36	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	06/05/24 10:25	06/07/24 09:36	7439-89-6	
Magnesium	**20200**	ug/L	50.0	20.1	1	06/05/24 10:25	06/07/24 09:36	7439-95-4	
Manganese	**2.9J**	ug/L	5.0	0.39	1	06/05/24 10:25	06/07/24 09:36	7439-96-5	
Potassium	**6150**	ug/L	500	69.7	1	06/05/24 10:25	06/07/24 09:36	7440-09-7	
Sodium	**5110**	ug/L	500	115	1	06/05/24 10:25	06/07/24 09:36	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**385**	mg/L	20.0	10.5	1		05/28/24 14:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**502**	mg/L	10.0	10.0	1		05/28/24 14:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.9**	mg/L	1.0	0.53	1		06/12/24 08:09	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		06/12/24 08:09	16984-48-8	N2
Sulfate	**41.9**	mg/L	10.0	5.5	10		06/12/24 08:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895736
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: 60453167001

METHOD BLANK: 3544957 Matrix: Water
Associated Lab Samples: 60453167001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	05/30/24 14:05	
Calcium	ug/L	<26.9	200	26.9	05/30/24 14:05	
Iron	ug/L	<9.1	50.0	9.1	05/30/24 14:05	
Magnesium	ug/L	<20.1	50.0	20.1	05/30/24 14:05	
Manganese	ug/L	<0.39	5.0	0.39	05/30/24 14:05	
Potassium	ug/L	<69.7	500	69.7	05/30/24 14:05	
Sodium	ug/L	<115	500	115	05/30/24 14:05	

LABORATORY CONTROL SAMPLE: 3544958

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	979	98	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	972	97	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE SAMPLE: 3544959

Parameter	Units	60453303001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	ND	1000	1010	99	70-130	
Calcium	ug/L	44400	10000	64000	196	70-130	M1
Iron	ug/L	187	10000	10800	106	70-130	
Magnesium	ug/L	5890	10000	17600	117	70-130	
Manganese	ug/L	9.4	1000	983	97	70-130	
Potassium	ug/L	3980	10000	14700	107	70-130	
Sodium	ug/L	52100	10000	70100	180	70-130	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3544960 3544961

Parameter	Units	60453166004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	14400	1000	1000	14700	15300	30	89	70-130	4	20	M1
Calcium	ug/L	101000	10000	10000	104000	108000	35	77	70-130	4	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3544960 3544961

Parameter	Units	60453166004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	16.6J	10000	10000	10100	10400	100	104	70-130	3	20	
Magnesium	ug/L	32.9J	10000	10000	9780	10100	97	100	70-130	3	20	
Manganese	ug/L	13.0	1000	1000	1080	1090	107	108	70-130	1	20	
Potassium	ug/L	16100	10000	10000	25800	26600	97	106	70-130	3	20	
Sodium	ug/L	82700	10000	10000	88800	92300	62	96	70-130	4	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895824
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: 60453167006, 60453238001

METHOD BLANK: 3545442 Matrix: Water
Associated Lab Samples: 60453167006, 60453238001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/04/24 11:34	
Calcium	ug/L	<26.9	200	26.9	06/04/24 11:34	
Iron	ug/L	39.2J	50.0	9.1	06/04/24 11:34	
Magnesium	ug/L	<20.1	50.0	20.1	06/04/24 11:34	
Manganese	ug/L	<0.39	5.0	0.39	06/04/24 11:34	
Potassium	ug/L	<69.7	500	69.7	06/04/24 11:34	
Sodium	ug/L	<115	500	115	06/04/24 11:34	

LABORATORY CONTROL SAMPLE: 3545443

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	958	96	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	9980	100	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	9860	99	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3545444 3545445

Parameter	Units	60453238001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	3920	1000	1000	4990	4940	107	102	70-130	1	20	
Calcium	ug/L	73700	10000	10000	85100	83300	114	97	70-130	2	20	
Iron	ug/L	5210	10000	10000	15800	15100	106	99	70-130	4	20	
Magnesium	ug/L	7160	10000	10000	17300	17000	101	99	70-130	2	20	
Manganese	ug/L	494	1000	1000	1530	1520	103	103	70-130	0	20	
Potassium	ug/L	7560	10000	10000	17700	17600	101	100	70-130	1	20	
Sodium	ug/L	97700	10000	10000	109000	108000	117	99	70-130	2	20	

MATRIX SPIKE SAMPLE: 3545446

Parameter	Units	60453436003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	ND	1000	1010	96	70-130	
Calcium	ug/L	138000	10000	149000	108	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE SAMPLE: 3545446

Parameter	Units	60453436003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	ND	10000	10100	101	70-130	
Magnesium	ug/L	11100	10000	21000	99	70-130	
Manganese	ug/L	ND	1000	1030	102	70-130	
Potassium	ug/L	11100	10000	20900	99	70-130	
Sodium	ug/L	89000	10000	98500	95	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896143
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: 60453167009, 60453167010

METHOD BLANK: 3546715 Matrix: Water
Associated Lab Samples: 60453167009, 60453167010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/05/24 16:16	
Calcium	ug/L	<26.9	200	26.9	06/05/24 16:16	
Iron	ug/L	<9.1	50.0	9.1	06/05/24 16:16	
Magnesium	ug/L	<20.1	50.0	20.1	06/05/24 16:16	
Manganese	ug/L	<0.39	5.0	0.39	06/05/24 16:16	
Potassium	ug/L	<69.7	500	69.7	06/05/24 16:16	
Sodium	ug/L	<115	500	115	06/05/24 16:16	

LABORATORY CONTROL SAMPLE: 3546716

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	918	92	85-115	
Calcium	ug/L	10000	9950	99	85-115	
Iron	ug/L	10000	9730	97	85-115	
Magnesium	ug/L	10000	9730	97	85-115	
Manganese	ug/L	1000	1000	100	85-115	
Potassium	ug/L	10000	9440	94	85-115	
Sodium	ug/L	10000	9490	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3546717 3546718

Parameter	Units	60453167011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	7190	1000	1000	7830	8140	64	95	70-130	4	20	M1
Calcium	ug/L	93300	10000	10000	98000	102000	47	91	70-130	4	20	M1
Iron	ug/L	6490	10000	10000	15900	16800	95	103	70-130	5	20	
Magnesium	ug/L	19200	10000	10000	28000	29400	88	102	70-130	5	20	
Manganese	ug/L	1010	1000	1000	2000	2010	99	99	70-130	0	20	
Potassium	ug/L	5030	10000	10000	15000	15300	100	103	70-130	2	20	
Sodium	ug/L	88500	10000	10000	94100	97500	56	90	70-130	3	20	M1

MATRIX SPIKE SAMPLE: 3546719

Parameter	Units	60453167013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	171	1000	1110	94	70-130	
Calcium	ug/L	138000	10000	144000	63	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE SAMPLE: 3546719

Parameter	Units	60453167013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	136	10000	9940	98	70-130	
Magnesium	ug/L	21800	10000	31300	95	70-130	
Manganese	ug/L	904	1000	1930	103	70-130	
Potassium	ug/L	23500	10000	33400	99	70-130	
Sodium	ug/L	4400	10000	14200	98	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896753
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: 60453167018, 60453167019, 60453167020

METHOD BLANK: 3549216 Matrix: Water
Associated Lab Samples: 60453167018, 60453167019, 60453167020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	06/07/24 08:19	
Calcium	ug/L	34.8J	200	26.9	06/07/24 08:19	
Iron	ug/L	13.7J	50.0	9.1	06/07/24 08:19	
Magnesium	ug/L	<20.1	50.0	20.1	06/07/24 08:19	
Manganese	ug/L	<0.39	5.0	0.39	06/07/24 08:19	
Potassium	ug/L	<69.7	500	69.7	06/07/24 08:19	
Sodium	ug/L	<115	500	115	06/07/24 08:19	

LABORATORY CONTROL SAMPLE: 3549217

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	967	97	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10400	104	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	10100	101	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549218 3549219

Parameter	Units	60453848001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	9.6J	1000	1000	990	994	98	98	70-130	0	20	
Calcium	ug/L	238000	10000	10000	243000	249000	50	110	70-130	2	20	M1
Iron	ug/L	ND	10000	10000	10500	10600	105	106	70-130	1	20	
Magnesium	ug/L	25900	10000	10000	35600	36300	98	104	70-130	2	20	
Manganese	ug/L	158	1000	1000	1200	1190	104	103	70-130	1	20	
Potassium	ug/L	3210	10000	10000	13600	13700	103	105	70-130	1	20	
Sodium	ug/L	4130	10000	10000	14500	14700	104	105	70-130	1	20	

MATRIX SPIKE SAMPLE: 3549220

Parameter	Units	60453857001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	179	1000	1140	96	70-130	
Calcium	ug/L	77100	10000	87200	101	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE SAMPLE: 3549220

Parameter	Units	60453857001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	ND	10000	10400	103	70-130	
Magnesium	ug/L	20400	10000	30300	99	70-130	
Manganese	ug/L	110	1000	1130	102	70-130	
Potassium	ug/L	7440	10000	17500	100	70-130	
Sodium	ug/L	63600	10000	74500	109	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896969
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453238004, 60453238005, 60453238006, 60453238007

METHOD BLANK: 3550163 Matrix: Water
Associated Lab Samples: 60453238004, 60453238005, 60453238006, 60453238007

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

LABORATORY CONTROL SAMPLE: 3550164

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3550165 3550166

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

MATRIX SPIKE SAMPLE: 3550167

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE SAMPLE: 3550167

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

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895687
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167001, 60453167006

METHOD BLANK: 3544782 Matrix: Water
Associated Lab Samples: 60453167001, 60453167006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	05/24/24 15:39	

LABORATORY CONTROL SAMPLE: 3544783

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

SAMPLE DUPLICATE: 3544785

Parameter	Units	60453166013 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	455	448	2	10	

SAMPLE DUPLICATE: 3545466

Parameter	Units	60453133002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	1380	1470	6	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895910 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167009, 60453167010, 60453167018, 60453167019, 60453167020

METHOD BLANK: 3546043 Matrix: Water
Associated Lab Samples: 60453167009, 60453167010, 60453167018, 60453167019, 60453167020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	05/28/24 13:13	

LABORATORY CONTROL SAMPLE: 3546044

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	502	100	90-110	

SAMPLE DUPLICATE: 3546045

Parameter	Units	60453167011 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	149	150	0	10	

SAMPLE DUPLICATE: 3546046

Parameter	Units	60453167015 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	127	127	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896052 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453238001, 60453238004, 60453238005, 60453238006

METHOD BLANK: 3546390 Matrix: Water
Associated Lab Samples: 60453238001, 60453238004, 60453238005, 60453238006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	05/31/24 16:31	

LABORATORY CONTROL SAMPLE: 3546391

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	507	101	90-110	

SAMPLE DUPLICATE: 3546392

Parameter	Units	60453469008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	622	613	1	10	

SAMPLE DUPLICATE: 3546393

Parameter	Units	60453238001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	180	187	4	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896321
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60453238007

METHOD BLANK: 3547433 Matrix: Water
Associated Lab Samples: 60453238007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	06/01/24 14:40	

LABORATORY CONTROL SAMPLE: 3547434

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	509	102	90-110	

SAMPLE DUPLICATE: 3547435

Parameter	Units	60453167028 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	193	194	1	10	

SAMPLE DUPLICATE: 3547436

Parameter	Units	60453351008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	420	419	0	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895067
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60453167001

METHOD BLANK: 3542516 Matrix: Water
Associated Lab Samples: 60453167001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/20/24 10:39	

LABORATORY CONTROL SAMPLE: 3542517

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	900	90	80-120	

SAMPLE DUPLICATE: 3542518

Parameter	Units	60452946003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	868	848	2	10	

SAMPLE DUPLICATE: 3542519

Parameter	Units	60453166004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	657	652	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895235
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167006, 60453238001

METHOD BLANK: 3543060 Matrix: Water
Associated Lab Samples: 60453167006, 60453238001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/21/24 11:24	

LABORATORY CONTROL SAMPLE: 3543061

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	963	96	80-120	

SAMPLE DUPLICATE: 3543187

Parameter	Units	60453238001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	552	740	29	10	D6

SAMPLE DUPLICATE: 3543296

Parameter	Units	60453275001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1030	1050	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895513 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167009, 60453167010, 60453238004, 60453238005, 60453238006, 60453238007

METHOD BLANK: 3544098 Matrix: Water
Associated Lab Samples: 60453167009, 60453167010, 60453238004, 60453238005, 60453238006, 60453238007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/22/24 15:14	

LABORATORY CONTROL SAMPLE: 3544099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	915	92	80-120	

SAMPLE DUPLICATE: 3544101

Parameter	Units	60453358003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	406	385	5	10	

SAMPLE DUPLICATE: 3544191

Parameter	Units	60453167011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	640	695	8	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895953
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167020

METHOD BLANK: 3546159 Matrix: Water
Associated Lab Samples: 60453167020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/28/24 10:39	

LABORATORY CONTROL SAMPLE: 3546160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	915	92	80-120	

SAMPLE DUPLICATE: 3546161

Parameter	Units	60453167004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	530	529	0	10	H1

SAMPLE DUPLICATE: 3546193

Parameter	Units	60453167028 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	715	719	1	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 895999
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60453167018, 60453167019

METHOD BLANK: 3546289 Matrix: Water
Associated Lab Samples: 60453167018, 60453167019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/28/24 14:18	

LABORATORY CONTROL SAMPLE: 3546290

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

SAMPLE DUPLICATE: 3546291

Parameter	Units	60453637001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1570	1670	6	10	H1

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896824
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: 60453238001

METHOD BLANK: 3549452 Matrix: Water
Associated Lab Samples: 60453238001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/06/24 09:21	
Fluoride	mg/L	<0.12	0.20	0.12	06/06/24 09:21	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/06/24 09:21	

METHOD BLANK: 3553509 Matrix: Water
Associated Lab Samples: 60453238001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/10/24 10:59	
Fluoride	mg/L	<0.12	0.20	0.12	06/10/24 10:59	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/10/24 10:59	

LABORATORY CONTROL SAMPLE: 3549453

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	2.3	92	90-110	N2
Sulfate	mg/L	5	4.6	92	90-110	

LABORATORY CONTROL SAMPLE: 3553510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	N2
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549454 3549455

Parameter	Units	60453238001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	22.2	25	25	44.3	42.4	89	81	80-120	4	15	
Fluoride	mg/L	0.35	2.5	2.5	2.7	2.7	93	95	80-120	1	15	N2
Sulfate	mg/L	210	250	250	613	534	161	130	80-120	14	15	M1

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549457 3549458

Parameter	Units	60453795007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21.5	25	25	50.1	48.9	115	110	80-120	2	15	
Fluoride	mg/L	ND	12.5	12.5	15.5	16.7	124	134	80-120	8	15	M1,N2
Sulfate	mg/L	93.2	25	25	124	121	125	112	80-120	3	15	E,M1

SAMPLE DUPLICATE: 3549456

Parameter	Units	60453238001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	22.2	22.0	1	15	
Fluoride	mg/L	0.35	<0.12		15	N2
Sulfate	mg/L	210	225	7	15	

SAMPLE DUPLICATE: 3549459

Parameter	Units	60453795007 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	21.5	20.6	4	15	
Fluoride	mg/L	ND	<0.62		15	N2
Sulfate	mg/L	93.2	91.5	2	15	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 896825
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: 60453238004, 60453238005, 60453238006, 60453238007

METHOD BLANK: 3549460 Matrix: Water
Associated Lab Samples: 60453238004, 60453238005, 60453238006, 60453238007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/06/24 09:15	
Fluoride	mg/L	<0.12	0.20	0.12	06/06/24 09:15	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/06/24 09:15	

METHOD BLANK: 3553513 Matrix: Water
Associated Lab Samples: 60453238004, 60453238005, 60453238006, 60453238007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/10/24 10:59	
Fluoride	mg/L	<0.12	0.20	0.12	06/10/24 10:59	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/10/24 10:59	

METHOD BLANK: 3555090 Matrix: Water
Associated Lab Samples: 60453238004, 60453238005, 60453238006, 60453238007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/11/24 09:07	
Fluoride	mg/L	<0.12	0.20	0.12	06/11/24 09:07	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/11/24 09:07	

LABORATORY CONTROL SAMPLE: 3549461

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	108	90-110	N2
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 3553514

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	N2
Sulfate	mg/L	5	5.1	102	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

LABORATORY CONTROL SAMPLE: 3555091

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	N2
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549462 3549463

Parameter	Units	60453166004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	23.7	100	100	172	152	149	129	80-120	12	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	<0.12	<0.12	0	1	80-120		15	M1,N2
Sulfate	mg/L	279	100	100	440	422	161	143	80-120	4	15	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3549465 3549466

Parameter	Units	60453358003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.4	5	5	7.3	7.3	99	98	80-120	0	15	
Fluoride	mg/L	<0.12	2.5	2.5	2.4	2.4	95	95	80-120	0	15	N2
Sulfate	mg/L	25.1	50	50	75.5	69.7	101	89	80-120	8	15	

SAMPLE DUPLICATE: 3549464

Parameter	Units	60453166004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	23.7	23.4	1	15	
Fluoride	mg/L	<0.12	<0.12		15	N2
Sulfate	mg/L	279	285	2	15	

SAMPLE DUPLICATE: 3549467

Parameter	Units	60453358003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	2.4	2.4	1	15	
Fluoride	mg/L	<0.12	<0.12		15	N2
Sulfate	mg/L	25.1	27.6	10	15	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 897150
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: 60453167001, 60453167006

METHOD BLANK: 3551057 Matrix: Water
Associated Lab Samples: 60453167001, 60453167006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/10/24 07:16	
Fluoride	mg/L	<0.12	0.20	0.12	06/10/24 07:16	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/10/24 07:16	

METHOD BLANK: 3555086 Matrix: Water
Associated Lab Samples: 60453167001, 60453167006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/12/24 10:24	
Fluoride	mg/L	<0.12	0.20	0.12	06/12/24 10:24	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/12/24 10:24	

LABORATORY CONTROL SAMPLE: 3551058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	N2
Sulfate	mg/L	5	4.6	92	90-110	

LABORATORY CONTROL SAMPLE: 3555087

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	N2
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3551059 3551060

Parameter	Units	60453754006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	47.8	100	100	151	150	103	103	80-120	0	15	
Fluoride	mg/L	ND	50	50	58.2	58.5	116	117	80-120	1	15	N2
Sulfate	mg/L	2720	1000	1000	2960	4210	24	149	80-120	35	15	M1,R1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

MATRIX SPIKE SAMPLE: 3551061

Parameter	Units	60453754008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	40.0	100	133	93	80-120	
Fluoride	mg/L	ND	50	54.6	105	80-120	N2
Sulfate	mg/L	1430	1000	3610	217	80-120	M1

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 897382
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: 60453167009, 60453167010

METHOD BLANK: 3552624 Matrix: Water
Associated Lab Samples: 60453167009, 60453167010

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

METHOD BLANK: 3554985 Matrix: Water
Associated Lab Samples: 60453167009, 60453167010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/12/24 10:42	
Fluoride	mg/L	<0.12	0.20	0.12	06/12/24 10:42	N2
Sulfate	mg/L	<0.55	1.0	0.55	06/12/24 10:42	

LABORATORY CONTROL SAMPLE: 3552625

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

LABORATORY CONTROL SAMPLE: 3555135

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	2.6	106	90-110	N2
Sulfate	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3552626 3552627

Parameter	Units	60453167011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	30.7	100	100	135	134	104	103	80-120	1	15	
Fluoride	mg/L	<0.12	2.5	2.5	2.9	2.9	114	116	80-120	2	15	N2
Sulfate	mg/L	357	100	100	484	477	127	120	80-120	1	15	E,M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

SAMPLE DUPLICATE: 3552628

Parameter	Units	60453167011 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	30.7	28.3	8	15	
Fluoride	mg/L	<0.12	<0.12		15	N2
Sulfate	mg/L	357	332	7	15	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60453238

QC Batch: 897383
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: 60453167018, 60453167019, 60453167020

METHOD BLANK: 3555098 Matrix: Water
Associated Lab Samples: 60453167018, 60453167019, 60453167020

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

LABORATORY CONTROL SAMPLE: 3555099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.7	107	90-110	N2
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3552631 3552632

Parameter	Units	60453167028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	49.7	100	100	213	200	163	150	80-120	6	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	4.2	4.3	165	167	80-120	1	15	M1,N2
Sulfate	mg/L	351	100	100	543	508	192	157	80-120	7	15	M1

SAMPLE DUPLICATE: 3552633

Parameter	Units	60453167028 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	49.7	45.0	10	15	
Fluoride	mg/L	<0.12	<0.12		15	N2
Sulfate	mg/L	351	326	7	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
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Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: AMEREN LCPB
Pace Project No.: 60453238

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 60453238001

[1] make sure to add ms, msd, and dup for RQS

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LCPB
Pace Project No.: 60453238

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60453167001	**L-LMW-2S**	EPA 200.7	895736	EPA 200.7	895848
60453167006	**L-LMW-4S**	EPA 200.7	895824	EPA 200.7	895890
60453238001	**L-LMW-3S**	EPA 200.7	895824	EPA 200.7	895890
60453238004	**L-LMW-5S**	EPA 200.7	896969	EPA 200.7	897200
60453238005	**L-LMW-6S**	EPA 200.7	896969	EPA 200.7	897200
60453238006	**L-LMW-DUP-1**	EPA 200.7	896969	EPA 200.7	897200
60453238007	**L-LMW-FB-1**	EPA 200.7	896969	EPA 200.7	897200
60453167009	**L-LMW-8S**	EPA 200.7	896143	EPA 200.7	896437
60453167010	**L-LMW-7S**	EPA 200.7	896143	EPA 200.7	896437
60453167018	**L-BMW-1S**	EPA 200.7	896753	EPA 200.7	896952
60453167019	**L-BMW-2S**	EPA 200.7	896753	EPA 200.7	896952
60453167020	**L-LMW-1S**	EPA 200.7	896753	EPA 200.7	896952
60453167001	**L-LMW-2S**	SM 2320B	895687		
60453167006	**L-LMW-4S**	SM 2320B	895687		
60453238001	**L-LMW-3S**	SM 2320B	896052		
60453238004	**L-LMW-5S**	SM 2320B	896052		
60453238005	**L-LMW-6S**	SM 2320B	896052		
60453238006	**L-LMW-DUP-1**	SM 2320B	896052		
60453238007	**L-LMW-FB-1**	SM 2320B	896321		
60453167009	**L-LMW-8S**	SM 2320B	895910		
60453167010	**L-LMW-7S**	SM 2320B	895910		
60453167018	**L-BMW-1S**	SM 2320B	895910		
60453167019	**L-BMW-2S**	SM 2320B	895910		
60453167020	**L-LMW-1S**	SM 2320B	895910		
60453167001	**L-LMW-2S**	SM 2540C	895067		
60453167006	**L-LMW-4S**	SM 2540C	895235		
60453238001	**L-LMW-3S**	SM 2540C	895235		
60453238004	**L-LMW-5S**	SM 2540C	895513		
60453238005	**L-LMW-6S**	SM 2540C	895513		
60453238006	**L-LMW-DUP-1**	SM 2540C	895513		
60453238007	**L-LMW-FB-1**	SM 2540C	895513		
60453167009	**L-LMW-8S**	SM 2540C	895513		
60453167010	**L-LMW-7S**	SM 2540C	895513		
60453167018	**L-BMW-1S**	SM 2540C	895999		
60453167019	**L-BMW-2S**	SM 2540C	895999		
60453167020	**L-LMW-1S**	SM 2540C	895953		
60453167001	**L-LMW-2S**	EPA 300.0	897150		
60453167006	**L-LMW-4S**	EPA 300.0	897150		
60453238001	**L-LMW-3S**	EPA 300.0	896824		
60453238004	**L-LMW-5S**	EPA 300.0	896825		
60453238005	**L-LMW-6S**	EPA 300.0	896825		

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 LCPB
Pace Project No.: 60453238

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60453238006	**L-LMW-DUP-1**	EPA 300.0	896825		
60453238007	**L-LMW-FB-1**	EPA 300.0	896825		
60453167009	**L-LMW-8S**	EPA 300.0	897382		
60453167010	**L-LMW-7S**	EPA 300.0	897382		
60453167018	**L-BMW-1S**	EPA 300.0	897383		
60453167019	**L-BMW-2S**	EPA 300.0	897383		
60453167020	**L-LMW-1S**	EPA 300.0	897383		

WO# : 60453238

60453238

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): As-read 1.5/1.2/23.9 Corr. Factor 0.0 Corrected 1.5/1.2/23.9

Date and initials of person examining contents: PV 5/20/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 62187	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60453238

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units
L-LMW-3S	WT	G			5-17-24	0920	6		
L-LMW-5S	WT								
L-LMW-6S	WT								
L-LMW-DUP-1	WT								
L-LMW-FB-1	WT								
L-LMW-MS-1	WT	G			5-17-24	0920	6		
L-LMW-MSD-2	WT	G			5-17-24	0920	6		
L-LMW-4S	WT	G			5-17-24	1232	6		

Specify Container Size **: 1 1 3 3 3 3 3 1

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

Analysis Requested

Chloride/Fluoride/Sulfate	TDS / Alkalinity	Perform from Perkinelmer	COD / TOC	Sulfide	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228
✓	✓		✓		✓	✓	✓	✓	✓
✓	✓		✓		✓	✓	✓	✓	✓
✓	✓		✓		✓	✓	✓	✓	✓
✓	✓		✓		—	—	—	✓	✓

Lab Use Only

Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3086546

Sample Comment

Sample Comment	Preservation non-conformance identified for sample:
Collected@L-LMW-3S	
1	

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

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

Additional Instructions from Pace®:
*** App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B**
****App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg**
*****UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness**

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
3	T299	0.0	1.5/1.2/23.9	1.5/1.2/23.9	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Rocksmith	5-17-24 / 1600		5/18/24 0600
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

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

Page: of

Client: Rocksmith Geoeng Profile #

Site: Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT												6						3			2	3									
2																																
3																																
4																																
5																																
6	WT																					2										
7	L																					2										
8																																
9																																
10																																
11																																
12																																

Container Codes

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

Work Order Number: 60453238

WO# : 60453167

60453167

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): As-read 17.9/18.4 Corr. Factor 0.0 Corrected 17.9/18.4

Temperature should be above freezing to 6°C 2.1/2.0/1.8 2.1/2.0/1.8

Date and initials of person examining contents: 5/17/24

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 67187/66203	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60453167

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	Ferrous Iron (Function)	COD / TOC	Solids	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228	Sample Comment	Preservation non-conformance identified for sample
L-LMW-3S	WT																				
L-LMW-5S	WT																				
L-LMW-6S	WT																				
L-LMW-DUP-1	WT																				
L-LMW-FB-1	WT																				
L-LMW-MS-1	WT																				
L-LMW-MSD-2	WT																				
L-LMW-2S	WT	G			5-15-24	1302	6			✓	✓		✓		✓	✓	✓	✓	✓		

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

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

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3086546

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
5	T299	0.0	0	17.9/18.4/1.8/2.1/20	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	5-16-24 1330		5/17/24 0530	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

Client: Rocksmith Geoeng

Profile #

Site:

Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1																																
2																																
3																																
4																																
5	WT												2						1		1	2	1				1					
6																																
7																																
8																																
9	WT												↓						↓		↓	↓	↓				↓					
10	WT												↓						↓		↓	↓	↓				↓					
11																																
12																																

Container Codes

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

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

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

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

Work Order Number: 60453167

WO# : 60453238

60453238

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): **As-read** 2.1/1.5 **Corr. Factor** 0.0 **Corrected** 2.1/1.5/16.9/17.1

Date and initials of person examining contents: RV 5/22/24

Temperature should be above freezing to 6°C 16.9/17.1

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 67187/606203	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60453238

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	~~Ferrous Iron / Ferric Iron~~	COD / TOC	~~Sulfide~~	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228	Sample Comment	Preservation non-conformance identified for sample.
Container Size **										1	1		3		3	3	3	3	1		
Preservative Type***										1	1		3		2	2	2	3	2		
L-LMW-3S	WT																				
L-LMW-5S	WT	G			5-20-24	1547	6			✓	✓		✓		✓	✓	✓	✓	✓		
L-LMW-6S	WT	G				1154	6			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
L-LMW-DUP-1	WT	G				—	6			✓	✓		✓		✓	✓	✓	✓	✓		
L-LMW-FB-1	WT	G				1118	6			✓	✓		✓		✓	✓	✓	✓	✓		
L-LMW-MS-1	WT																				
L-LMW-MSD-2	WT																				
L-LMW-7S	WT	G			5-20-24	1305	6			✓	✓		✓		✓	✓	✓	✓	✓		
L-LMW-8S	WT	G			5-20-24	1444	6			✓	✓		✓		✓	✓	✓	✓	✓		

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

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

Lab Use Only

Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3086546

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By:
(Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
4	T299	0.0	2.1/1.5/1.9	2.1/1.5/1.9	17.1

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	5/21/24 1554		5/22/24 0550	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

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

ENV-FRM-CORQ-0019_v02_110123 ©

DO not log L-LMW-75 and L-LMW-85.

One AG3S = SE-21WET. Only Print what you log.

Client: Rocksmith Geoeng

Profile # BPIN = SE-38RAD and SE-38RADOL

Site:

Notes Append to 60453238

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1																																
2	WT												2						1			2	1									
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

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

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

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

Work Order Number: 60453238

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 60453238

60453238

Company Name:	Rocksmith Geoengineering, LLC.	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

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

Specify Container Size **

1	1		3		3	3	3	3	1

Identify Container Preservative Type***

1	1		3		2	2	2	3	2

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

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	Ferrous Iron/Ferric Iron	COD / TOC	Sulfide	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228	Sample Comment	Preservation non-conformance identified for sample.
L-LMW-3S	WT																				
L-LMW-5S	WT																				
L-LMW-6S	WT																				
L-LMW-DUP-1	WT																				
L-LMW-FB-1	WT																				
L-LMW-MS-1	WT																				
L-LMW-MSD-2	WT																				
L-LMW-1S	WT	G			5-21-24	1515	6			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
L-BMW-1S	WT	G			5-23-24	1245	6			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
L-BMW-2S	WT	G			1	0928	6			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Lab Use Only

Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3086546

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By: (Printed Name) Grant Morey
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

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

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Grant Morey / Rocksmith	5-23-24/1530			
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

Page 58 of 63

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

Internal Transfer Chain of Custody

F161

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MO
Cert. Needed: ☐ Yes ☒ No

Workorder: 60453238 Workorder Name: AMEREN LCPB COC#3

Owner Received Date: 5/18/2024 Results Requested By: 6/11/2024

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: H2SO4	Requested Analysis: 9020B TOX	LAB USE ONLY
1	L-LMW-3S	RQS	5/17/2024 09:20	60453238001	Water	1	X	-01
2								
3								
4								
5								

L1739096

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	5/21/24 1700		
2				
3			Christopher J. Collins	5/22/24 0900

Comments

Cooler Temperature on Receipt ____°C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

5.4+.1=5.5

Sample Receipt Checklist

COC Seal Present/Intact:	X Y N	If Applicable	
COC Signed/Accurate:	X Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	X Y N	Pres. Correct/Check:	Y N
Correct bottles used:	X Y N	1 TOTAL	
Sufficient volume sent:	X Y N		
RA Screen <0.5 mR/hr:	X Y N		

G080

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MO
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 5/18/2024 Results Requested By: 6/11/2024

Workorder: 60453238 Workorder Name: AMEREN LCPB COC#3

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858

Requested Analysis

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: H2SO4	9020B TOX	LAB USE ONLY
1	L-LMW-3S	RQS	5/17/2024 09:20	60453238001	Water	2-1	X	-01
1	L-LMW-5S	PS	5/20/2024 15:47	60453238004	Water	1	X	-02
2	L-LMW-6S	PS	5/20/2024 11:54	60453238005	Water	1	X	-03
3	L-LMW-DUP-1	PS	5/20/2024 00:00	60453238006	Water	1	X	-04
4	L-LMW-FB-1	PS	5/20/2024 11:18	60453238007	Water	1	X	-05

L1739606

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	5.22.24 1700		
2			[signature]	05/23/24 0900
3				

Comments: 04

Cooler Temperature on Receipt ____ °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

6DM 6 2.0=2.1 7146 2379 3477

Sample Receipt Checklist

COC Seal Present/Intact:	X Y N	If Applicable	
COC Signed/Accurate:	X Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	X Y N	Pres. Correct/Check:	X Y N
Correct bottles used:	X Y N		
Sufficient volume sent:	X Y N		
RA Screen <0.5 mR/hr:	X Y N	Containers: 6	

L1739606

INTER_LABORATORY WORK ORDER # 60453238

(To be completed by sending lab)

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

Sending Project No:	60453238
Receiving Project No:	
Check Box for Consolidated Invoice:	☐
Date Prepared:	05/22/24
REQUESTED COMPLETION DATE:	**6/11/2024**

Sending Region	IR60-Kansas	Sending Project Mgr.	Jamie Church
Receiving Region	IR850-Pace National	External Client	Rocksmith Geoengineering, LLC.
State of Sample Origin	MO	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed NO

WORK REQUESTED

Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
9020B TOX	AG3S	4	H2SO4	4	SI-21WET	SUB PASI WET

Special Requirements: Report D, QC Limits, MDLs (D),Golder Ameren (1010)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

Internal Transfer Chain of Custody

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MO
Cert. Needed: ☐ Yes ☒ No

Workorder: 60453238 Workorder Name: AMEREN LCPB COC#3

Owner Received Date: 5/18/2024 Results Requested By: 6/11/2024

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3						Requested Analysis Radium 226	Radium 228										LAB USE ONLY
1	L-LMW-3S	RQS	5/17/2024 09:20	60453238001	Water	2						X	X										
2	L-LMW-MS-1	PS	5/17/2024 09:20	60453238002	Water	2						X	X										
3	L-LMW-MSD-2	PS	5/17/2024 09:20	60453238003	Water	2						X	X										
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1		5/21/24 1700		
2				5/22/24 930
3				

Comments
**Note: Sample 001 is parent sample for 002 & 003 MS/MSD

Cooler Temperature on Receipt _____ °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO# : 30686150

30686150

DC#_Title: ENV-FRM-GBUR-0088 v07_Sample Condition Upon Receipt-Greensburg

Effective Date: 01/04/2024

WO# : 30686150

PM: MAR Due Date: 06/13/24

CLIENT: PACE_60_LEKS

Client Name: Pace KS

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking Number: _____

Initial / Date

Examined By: BR 5-22-24

Labeled By: BR 5-22-24

Temped By: BR 5-22-24

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

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

Cooler Temperature: Observed Temp - °C Correction Factor: - °C Final Temp: - °C

Temp should be above freezing to 6°C

pH paper Lot# 002931 D.P.D. Residual Chlorine Lot #: -

Comments:	Yes	No	NA	
Chain of Custody Present	✓			1.
Chain of Custody Filled Out:	✓			2.
-Were client corrections present on COC		✓		
Chain of Custody Relinquished	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC:	✓			5.
-Includes date/time/ID	✓			
Matrix: WA				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous samples field filtered:			✓	13.
Organic Samples checked for dichlorination			✓	14:
Filtered volume received for dissolved tests:			✓	15:
All containers checked for preservation:	✓			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix				pH<2
All containers meet method preservation requirements:	✓			Initial when completed: BR Date/Time of Preservation:
				Lot# of added Preservative:
8260C/D: Headspace in VOA Vials (> 6mm)			✓	17.
624.1: Headspace in VOA Vials (0mm)			✓	18.
Radon: Headspace in RAD Vials (0mm)			✓	19.
Trip Blank Present:			✓	Trip blank custody seal present? YES or NO
Rad Samples Screened <.05 mrem/hr.	✓			Initial when completed: BR Date: 5-22-24 Survey Meter SN: 2504-580

Comments:

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.
PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.

Qualtrax ID: 55680

Memorandum

January 29, 2025

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23007-24
CC:	Mark Haddock, Jeffrey Ingram		
From:	Grant Morey	**Email:**	grant.morey@rocksmithgeo.com
RE:	**Data Validation Summary, Labadie Energy Center – LCPB – Data Package 60453238**		

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren LCPB
Project Number: 23007-24
Reviewer: G. Morey
Validation Date: 1/29/2025

Laboratory: Pace Analytical
SDG #: 60453238
Analytical Method (type and no.): EPA 200.7/200.8(Total Metals); SM 2320B (Alkalinity); SM 2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names L-LMW-3S, L-LMW-MS-1, L-LMW-MSD-2, L-LMW-5S, L-LMW-6S, L-LMW-DUP-1, L-LMW-FB-1, L-LMW-1S, L-LMW-2S, L-LMW-4S, L-LMW-7S, L-LMW-8S, L-BMW-1S, L-BMW-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			05/17/24-05/23/24
b) Sampling team indicated?	x			GTM/ANT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?		x		No lab narrative.

Note Deficiencies:

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

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	x			
b) Were hold times met for sample analysis?	x			
c) Were the correct preservatives used?	x			
d) Was the correct method used?	x			
e) Were appropriate reporting limits achieved?	x			
f) Were any sample dilutions noted?	x			Alkalinity, chloride, and sulfate in some samples
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			See Notes
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

Method Blanks:

3545442: iron (39.2J), associated with samples -006, -001. Sample -001 result is non-detect, no qualification necessary.

Sample -006 result > RL and 10x blank, no qualification necessary.

Field Banks:

L-LMW-FB-1 @ L-LMW-6S: calcium (40.7J) and manganese (4.0J); Calcium results > RL and 10x blank, no qualification necessary. Manganese results > RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Duplicates:

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

3543187: Lab duplicate exceeds max RPD for TDS, associated with sample -001, result qualified as estimate.

MS/MSD:

3544959: MS recovery high for calcium and sodium, associated with unrelated sample.

3544960/3544961: MS recovery low for boron, calcium and sodium, associated with unrelated sample, no qualification necessary.

3546717/3546718: MS recovery low for boron, calcium and sodium, MSD and RPD all within control limits, associated with unrelated sample, no qualification necessary.

3546719: MS recovery low for calcium, associated with unrelated sample.

3549218/3549219: MS recovery low for calcium, MSD and RPD within control limits, no qualification necessary.

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

3549454/3549455: MS and MSD recovery high for sulfate, RPD within control limits. Associated with sample -001, result qualified as estimate.

3549457/3549458: MS and MSD recovery high for fluoride, RPD within control limits. MS recovery high for sulfate, MSD and RPD within control limits. Associated with unrelated sample, no qualification necessary.

3549462/3549463: MS and MSD recovery high for chloride and sulfate. MS and MSD recovery low for fluoride. All associated with unrelated sample, no qualification necessary.

3551059/3551060: MS recovery low, MSD recovery high and RPD outside control limits for sulfate. Associated with unrelated sample, no qualification necessary.

3551061: MS recovery high for sulfate, associated with unrelated sample, no qualification necessary.

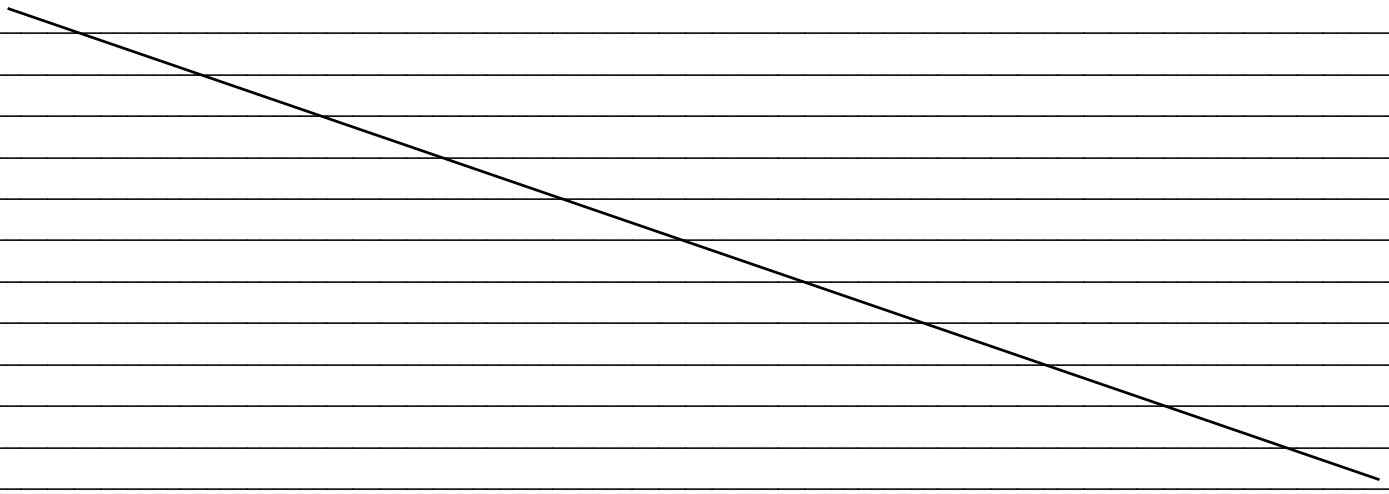
3552631/3552632: MS and MSD recovery high for chloride, fluoride and sulfate, RPD okay. Associated with unrelated sample.

3552626/3552627: MS recovery high for sulfate, MSD recovery and RPD within control limits, no qualification necessary.

Method Blanks, continued:

3549216: calcium (34.8J), iron (13.7J), associated with samples -018 through -020. Results are > RL and 10x blank, or non-detect, no qualification necessary.

3550163: iron (18.2J), associated with samples -004 through -007. Results from -005 and -006 detected < RL, results qualified as non-detects at RL. -004 result > RL and 10x blank, no qualification necessary. -007 result non-detect, no qualification necessary.



QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-3S	TDS	552	J	Lab DUP RPD exceeds control limits
L-LMW-3S	Sulfate	210	J+	MS and MSD recovery high, RPD okay
L-LMW-5S	Iron	50	U	Detected in blank, result < 10x blank and RL
L-LMW-DUP-1	"	50	U	"

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: Grant Morey Date: 1/29/2025

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

August 09, 2024

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

RE: Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Indianapolis

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.

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

CERTIFICATIONS

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Pace Analytical Services Indianapolis
7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Washington Dept of Ecology #: C1081
Wisconsin Laboratory #: 999788130
USDA Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60457488001	**L-LMW-1S**	Water	07/25/24 12:45	07/26/24 06:00
60457488002	**L-LMW-3S**	Water	07/25/24 12:15	07/26/24 06:00
60457488003	**L-LMW-DUP-1**	Water	07/25/24 00:00	07/26/24 06:00
60457488004	**L-LMW-FB-1**	Water	07/25/24 12:19	07/26/24 06:00

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60457488001	**L-LMW-1S**	EPA 300.0	ADM, KBB	2	PASI-I
60457488002	**L-LMW-3S**	EPA 300.0	ADM, KBB	2	PASI-I
60457488003	**L-LMW-DUP-1**	EPA 300.0	ADM, KBB	2	PASI-I
60457488004	**L-LMW-FB-1**	EPA 300.0	ADM	2	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Sample: L-LMW-1S **Lab ID: 60457488001** Collected: 07/25/24 12:45 Received: 07/26/24 06:00 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 - Indianapolis								
Fluoride	**0.11**	mg/L	0.10	0.017	1		08/09/24 01:45	16984-48-8	
Sulfate	**92.3**	mg/L	2.5	1.9	10		08/09/24 14:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Sample: L-LMW-3S **Lab ID: 60457488002** Collected: 07/25/24 12:15 Received: 07/26/24 06:00 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 - Indianapolis								
Fluoride	**0.28**	mg/L	0.10	0.017	1		08/09/24 00:17	16984-48-8	
Sulfate	**224**	mg/L	2.5	1.9	10		08/09/24 13:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Sample: L-LMW-DUP-1 **Lab ID: 60457488003** Collected: 07/25/24 00:00 Received: 07/26/24 06:00 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 - Indianapolis								
Fluoride	**0.12**	mg/L	0.10	0.017	1		08/08/24 23:44	16984-48-8	
Sulfate	**91.5**	mg/L	2.5	1.9	10		08/09/24 13:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Sample: L-LMW-FB-1 **Lab ID: 60457488004** Collected: 07/25/24 12:19 Received: 07/26/24 06:00 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 - Indianapolis								
Fluoride	**<0.017**	mg/L	0.10	0.017	1		08/09/24 13:51	16984-48-8	
Sulfate	**<0.19**	mg/L	0.25	0.19	1		08/09/24 13:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

QC Batch: 803272
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 60457488001, 60457488002, 60457488003, 60457488004

METHOD BLANK: 3673890 Matrix: Water
Associated Lab Samples: 60457488001, 60457488002, 60457488003, 60457488004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.017	0.10	0.017	08/08/24 23:20	
Sulfate	mg/L	<0.19	0.25	0.19	08/08/24 23:20	

LABORATORY CONTROL SAMPLE: 3673891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	1	0.95	95	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3673892 3673893

Parameter	Units	60457488002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.28	1	1	1.2	1.2	93	94	80-120	1	15	
Sulfate	mg/L	224	50	50	262	262	76	76	80-120	0	15	M0

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 LCPB-VERIFICATION
Pace Project No.: 60457488

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LCPB-VERIFICATION
Pace Project No.: 60457488

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60457488001	**L-LMW-1S**	EPA 300.0	803272		
60457488002	**L-LMW-3S**	EPA 300.0	803272		
60457488003	**L-LMW-DUP-1**	EPA 300.0	803272		
60457488004	**L-LMW-FB-1**	EPA 300.0	803272		

WO# : 60457488

60457488

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

Client Name: Rocksmith

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

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

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

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

Thermometer Used: T449 **Type of Ice:** Wet Blue None

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

Date and initials of person examining contents: AF 7/26

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

Page 1 of 1

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

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

Section C — Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — **Required** Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Fluoride	Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	L-LMW-1S	WT	G			7-25-24	1245		1	1									N	N		60457268
2	L-LMW-3S	WT	G			"	1215		1	1									N	N		60457488
3	L-LMW-DUP-1	WT	G			"	—		1	1									N	N		
4	L-LMW-FB-1	WT	G			"	1219		1	1									N	N		
5	L-LMW-MS-1	WT	G			"	1215		1	1									N	N		Collected @ L-LMW-3S
6	L-LMW-MSD-1	WT	G			"	1215		1	1									N	N		"
7		WT	G																			
8		WT	G																			
9		WT	G																			
10		WT	G																			
11		WT	G																			
12		WT	G																			

AF

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		7-25-24	1600		7/26	0900	1.1°

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Morey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/25/24

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

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

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

Client: Rocksmith

Site: Ameren CPB

Profile/EZ # ~~Append to 604574268~~ AF 15556-1

Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3B	BP3Z	WPDU	ZPLC	Other		
1	WT																			1												
2																				3												
3																				1												
4																				1												
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

Container Codes

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

Work Order Number: 60457468

Internal Transfer Chain of Custody

WO# : 50379269

50379269

☐ Rush Multiplier_____X

☐ Samples Pre-Logged into eCOC

State Of Origin: MO

Cert. Needed: ☐ Yes

Workorder: 60457488 Workorder Name: AMEREN LCPB-VERIFICATION

Owner Received Date: 7/26/2024 Results Requested By: 8/9/2024

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace Analytical Indianapolis 7726 Moller Road Indianapolis, IN 46268 Phone (317)875-5894

						Preserved Containers						Requested Analysis												
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Unpreserved						300.0 Fluoride/Sulfate												LAB USE ONLY
1	L-LMW-1S	PS	7/25/2024 12:45	60457488001	Water	1						X												001
2	L-LMW-3S	RQS	7/25/2024 12:15	60457488002	Water	1						X												002
3	L-LMW-DUP-1	PS	7/25/2024 00:00	60457488003	Water	1						X												003
4	L-LMW-FB-1	PS	7/25/2024 12:19	60457488004	Water	1						X												004
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1			Fedex	
2	Fedex	8111241900	~~Mallee~~	8111241900
3				

Comments

Cooler Temperature on Receipt 12.5 °C | Custody Seal (Y) or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: 811124 1150 mw

1. **Courier:** ☑ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ NOW/JETT ☐ OTHER _____
2. **Custody Seal on Cooler/Box Present:** ☑ Yes ☐ No
   (If yes)Seals Intact: ☑ Yes ☐ No **(leave blank if no seals were present)**
3. **Thermometer:** 1 2 3 4 5 6 7 8 9 (A) B C D E F G H I
4. **Cooler Temperature(s):** 12.5/12.5 | | | |
   (Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)

5. **Packing Material:** ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____
6. **Ice Type:** ☑ Wet ☐ Blue ☐ None
7. **Was the PM notified of out of temp cooler?:** ☑ Yes ☐ No
   Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
USDA Regulated Soils? (HI, ID, NY, WA, OR,CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		✓	All containers needing acid/base preservation have been pH CHECKED?: **Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.** **Circle: HNO3 (<2) H2SO4 (<2) NaOH (>10) NaOH/ZnAc (>9)** Any non-conformance to pH recommendations will be noted on the container count form			✓
Short Hold Time Analysis (48 hours or less)? Analysis:		✓				
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:		Residual Chlorine Check (SVOC 625 Pest/PCB 608)	Present	Absent	N/A ✓
Rush TAT Requested (4 days or less):		✓	Residual Chlorine Check (Total/Amenable/Free Cyanide)			✓
Custody Signatures Present?		✓	Headspace Wisconsin Sulfide?			✓
Containers Intact?:	✓		Headspace in VOA Vials (>6mm): See Containter Count form for details	Present	Absent	No VOA Vials Sent ✓
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	✓		Trip Blank Present?		✓	
Extra labels on Terracore Vials? (soils only)			Trip Blank Custody Seals?:			✓

COMMENTS:

COC PAGE ____ of ____

Sample Container Count

** Place a PINK dot on containers that are out of conformance **

									AMBER GLASS							PLASTIC									OTHER								
COC Line Item	WGFU	WGKU BG1U	MeOH (only) SBS DI R	DG9H VG9H	VOA VIAL HS (>6mm)	VG9U DG9U	VG9T		AG0U	AG1H	AG1U	AG3U	AG3S	AG3SF	AG3B	BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	CG3H	CG3F	Syringe Kit			Matrix	Nitric Red HNO3 <2	Sulfuric Yellow H2SO4 <2	Sodium Hydroxide Green NaOH >10	Sodium Hydroxide/ ZnAc Black NaOH/Zn Ac >9
1																																	
2																																	
3																																	
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	1L Na Thiosulfate clear glass	BP1B	1L NaOH plastic
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass	BP1N	1L HNO3 plastic
DG9S	40mL H2SO4 amber vial	CG3H	250mL HCl Clear Glass	BP1S	1L H2SO4 plastic
DG9T	40mL Na Thio amber vial	CG3U	250mL Unpres Clear Glass	BP1U	1L unpreserved plastic
DG9U	40mL unpreserved amber vial	AG0U	100mL unpres amber glass	BP1Z	1L NaOH, Zn, Ac
VG9H	40mL HCl clear vial	AG1H	1L HCl amber glass	BP2N	500mL HNO3 plastic
VG9T	40mL Na Thio. clear vial	AG1S	1L H2SO4 amber glass	BP2C	500mL NaOH plastic
VG9U	40mL unpreserved clear vial	AG1T	1L Na Thiosulfate amber glass	BP2S	500mL H2SO4 plastic
I	40mL w/hexane wipe vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic
WGKU	8oz unpreserved clear jar	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Ac
WGFU	4oz clear soil jar	AG2S	500mL H2SO4 amber glass	BP3B	250mL NaOH plastic
JGFU	4oz unpreserved amber wide	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic
CG3H	250mL clear glass HCl	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic-field filtered
CG3F	250mL clear glass HCl, Field Filter	AG3SF	250mL H2SO4 amb glass -field filtered	BP3U	250mL unpreserved plastic
BG1H	1L HCl clear glass	AG3U	250mL unpres amber glass	BP3S	250mL H2SO4 plastic
BG1S	1L H2SO4 clear glass	AG3B	250mL NaOH amber glass	BP3Z	250mL NaOH, ZnAc plastic

Plastic

NT3U	Non Teflon 250mL unpreserved plastic
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
GN	General Container
U	Summa Can (air sample)
WT	Water
SL	Solid
OL:	Oil
NAL	Non-aqueous liquid
WP	Wipe

Memorandum

August 14, 2024

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23007-24
CC:	Mark Haddock, Jeffrey Ingram		
From:	Jack Rasmussen	**Email:**	jack.rasmussen@rocksmithgeo.com
RE:	**Data Validation Summary, Labadie Energy Center – LCPB Verification – Data Package 60457488**		

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

- When a matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).
- When a compound was analyzed outside of hold time, the sample result was qualified as an estimate (J for detects, UJ for non-detects).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren LCPB - Verification
Project Number: 23007-24
Reviewer: J. Rasmussen
Validation Date: 8/14/2024

Laboratory: Pace Analytical
SDG #: 60457488
Analytical Method (type and no.): EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names L-LMW-1S, L-LMW-3S, L-LMW-DUP-1, L-LMW-FB-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			07/25/2024
b) Sampling team indicated?	x			GTM/JTR
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?		x		No lab narrative

Note Deficiencies: Communications with the lab indicated that shipping delays between lab facilities resulted in sample bottles arriving outside temperature controls for sulfate analysis (bottles arrived at 12 degrees Celsius). Sulfate results in this lab packet are therefore qualified as estimates. Fluoride analysis does not require specific temperature preservation.

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		Samples arrived outside temperature controls.

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

General:

Sulfate was diluted in several samples; no qualification necessary.

Duplicates:

L-LMW-DUP-1 @ L-LMW-1S. All RPDs within control limits.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MS/MSD:

3673892/3673893: MS and MSD recovery low for sulfate, RPD within control limits. Associated with sample -002.

Result qualified as estimate.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-3S	Sulfate	224	J-	MS and MSD recovery low, RPD okay
L-LMW-1S	Sulfate	92.3	J	Preserved outside of temperature controls
L-LMW-3S	Sulfate	224	J	"
L-LMW-DUP-1	Sulfate	91.5	J	"
L-LMW-FB-1	Sulfate	0.19	UJ	"

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Date: 08/14/2024

Pace Analytical Services, LLC
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(913)599-5665

January 06, 2025

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

RE: Project: AMEREN LCPB
Pace Project No.: 60463456

Dear Mark Haddock:

Enclosed are the analytical results for sample(s) received by the laboratory between October 30, 2024 and November 02, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

REV-1, Report revised to remove parameters not required under the CCR Rule.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Rocksmith Geoengineering, LLC.
Lisa Meyer, Ameren
Grant Morey, Rocksmith Geoengineering, LLC.
Austin Nieman, Ameren

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: AMEREN LCPB
Pace Project No.: 60463456

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

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SAMPLE SUMMARY

Project: AMEREN LCPB
Pace Project No.: 60463456

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60463456001	**L-LMW-3S**	Water	10/28/24 15:52	10/30/24 06:50
60463456002	**L-LMW-6S**	Water	10/29/24 09:47	10/30/24 06:50
60463456003	**L-LMW-DUP-1**	Water	10/29/24 08:00	10/30/24 06:50
60463456004	**L-LMW-FB-1**	Water	10/28/24 16:04	10/30/24 06:50
60463456005	**L-LMW-5S**	Water	10/31/24 09:15	11/01/24 05:52
60463456006	**L-LMW-MS-1**	Water	10/31/24 09:15	11/01/24 05:52
60463456007	**L-LMW-MSD-1**	Water	10/31/24 09:15	11/01/24 05:52
60463474016	**L-LMW-1S**	Water	10/30/24 09:45	11/01/24 05:52
60463474030	**L-LMW-2S**	Water	11/01/24 13:45	11/02/24 05:36
60463474017	**L-LMW-4S**	Water	10/30/24 16:25	11/01/24 05:52
60463474003	**L-LMW-7S**	Water	10/29/24 11:45	10/30/24 06:50
60463474004	**L-LMW-8S**	Water	10/29/24 13:02	10/30/24 06:50
60463474001	**L-BMW-1S**	Water	10/28/24 11:42	10/30/24 06:50
60463474002	**L-BMW-2S**	Water	10/28/24 09:40	10/30/24 06:50

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SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60463456

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60463456001	**L-LMW-3S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463456002	**L-LMW-6S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463456003	**L-LMW-DUP-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463456004	**L-LMW-FB-1**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463456005	**L-LMW-5S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474016	**L-LMW-1S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474030	**L-LMW-2S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474017	**L-LMW-4S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474003	**L-LMW-7S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474004	**L-LMW-8S**	EPA 200.7	ARMN	7	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60463456

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474001	**L-BMW-1S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K
60463474002	**L-BMW-2S**	EPA 200.7	ARMN	7	PASI-K
		SM 2320B	TML	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	AAA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-3S **Lab ID: 60463456001** Collected: 10/28/24 15:52 Received: 10/30/24 06:50 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	**4120**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:10	7440-42-8	
Calcium	**99000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:10	7440-70-2	
Iron	**10000**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:10	7439-89-6	
Magnesium	**12800**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:10	7439-95-4	
Manganese	**1050**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:10	7439-96-5	
Potassium	**6460**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:10	7440-09-7	
Sodium	**92300**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:10	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**321**	mg/L	40.0	21.0	2		11/11/24 13:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**667**	mg/L	13.3	13.3	1		11/04/24 14:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**23.3**	mg/L	10.0	5.3	10		11/19/24 16:31	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.12	1		11/19/24 16:17	16984-48-8	
Sulfate	**198**	mg/L	20.0	11.0	20		11/19/24 16:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-6S **Lab ID: 60463456002** Collected: 10/29/24 09:47 Received: 10/30/24 06:50 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	**761**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:17	7440-42-8	
Calcium	**174000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:17	7440-70-2	
Iron	**3990**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:17	7439-89-6	
Magnesium	**27200**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:17	7439-95-4	
Manganese	**566**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:17	7439-96-5	
Potassium	**6310**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:17	7440-09-7	
Sodium	**14300**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:17	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**552**	mg/L	20.0	10.5	1		11/11/24 14:51		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**645**	mg/L	13.3	13.3	1		11/05/24 13:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.5**	mg/L	1.0	0.53	1		11/19/24 16:58	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/19/24 16:58	16984-48-8	
Sulfate	**40.3**	mg/L	10.0	5.5	10		11/19/24 17:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-DUP-1 **Lab ID: 60463456003** Collected: 10/29/24 08:00 Received: 10/30/24 06:50 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	**772**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:19	7440-42-8	
Calcium	**170000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:19	7440-70-2	
Iron	**4120**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:19	7439-89-6	
Magnesium	**26700**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:19	7439-95-4	
Manganese	**576**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:19	7439-96-5	
Potassium	**6290**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:19	7440-09-7	
Sodium	**14200**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:19	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**529**	mg/L	20.0	10.5	1		11/11/24 14:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**615**	mg/L	13.3	13.3	1		11/05/24 13:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.5**	mg/L	1.0	0.53	1		11/19/24 17:26	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/19/24 17:26	16984-48-8	
Sulfate	**39.9**	mg/L	5.0	2.8	5		11/19/24 17:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-FB-1 **Lab ID: 60463456004** Collected: 10/28/24 16:04 Received: 10/30/24 06:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**<6.4**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:21	7440-42-8	
Calcium	**50.8J**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:21	7440-70-2	B
Iron	**<9.1**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:21	7439-89-6	
Magnesium	**<20.1**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:21	7439-95-4	
Manganese	**<0.39**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:21	7439-96-5	
Potassium	**<69.7**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:21	7440-09-7	
Sodium	**160J**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:21	7440-23-5	B
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<10.5**	mg/L	20.0	10.5	1		11/11/24 14:02		
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		11/04/24 14:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.53**	mg/L	1.0	0.53	1		11/19/24 17:54	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/19/24 17:54	16984-48-8	
Sulfate	**<0.55**	mg/L	1.0	0.55	1		11/19/24 17:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-5S **Lab ID: 60463456005** Collected: 10/31/24 09:15 Received: 11/01/24 05:52 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	**88.8J**	ug/L	100	6.4	1	11/04/24 13:07	11/15/24 12:24	7440-42-8	
Calcium	**152000**	ug/L	200	26.9	1	11/04/24 13:07	11/15/24 12:24	7440-70-2	M1,P6
Iron	**34.1J**	ug/L	50.0	9.1	1	11/04/24 13:07	11/15/24 12:24	7439-89-6	
Magnesium	**12900**	ug/L	50.0	20.1	1	11/04/24 13:07	11/15/24 12:24	7439-95-4	
Manganese	**6.3**	ug/L	5.0	0.39	1	11/04/24 13:07	11/15/24 12:24	7439-96-5	
Potassium	**5060**	ug/L	500	69.7	1	11/04/24 13:07	11/15/24 12:24	7440-09-7	
Sodium	**11000**	ug/L	500	115	1	11/04/24 13:07	11/15/24 12:24	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**415**	mg/L	20.0	10.5	1		11/13/24 17:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**453**	mg/L	10.0	10.0	1		11/07/24 14:07		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.5**	mg/L	1.0	0.53	1		11/13/24 09:12	16887-00-6	D6
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/13/24 09:12	16984-48-8	
Sulfate	**7.4**	mg/L	1.0	0.55	1		11/13/24 09:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-1S **Lab ID: 60463474016** Collected: 10/30/24 09:45 Received: 11/01/24 05:52 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	**772**	ug/L	100	6.4	1	11/04/24 08:52	11/14/24 17:30	7440-42-8	
Calcium	**99700**	ug/L	200	26.9	1	11/04/24 08:52	11/14/24 17:30	7440-70-2	
Iron	**663**	ug/L	50.0	9.1	1	11/04/24 08:52	11/14/24 17:30	7439-89-6	
Magnesium	**16000**	ug/L	50.0	20.1	1	11/04/24 08:52	11/14/24 17:30	7439-95-4	
Manganese	**454**	ug/L	5.0	0.39	1	11/04/24 08:52	11/14/24 17:30	7439-96-5	
Potassium	**4330**	ug/L	500	69.7	1	11/04/24 08:52	11/14/24 17:30	7440-09-7	
Sodium	**7700**	ug/L	500	115	1	11/04/24 08:52	11/14/24 17:30	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**314**	mg/L	20.0	10.5	1		11/11/24 17:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**364**	mg/L	10.0	10.0	1		11/06/24 16:22		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.1**	mg/L	1.0	0.53	1		11/13/24 12:39	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/13/24 12:39	16984-48-8	
Sulfate	**22.5**	mg/L	10.0	5.5	10		11/13/24 12:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-2S **Lab ID: 60463474030** Collected: 11/01/24 13:45 Received: 11/02/24 05:36 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	**3490**	ug/L	100	6.4	1	11/04/24 13:07	11/18/24 13:08	7440-42-8	
Calcium	**73800**	ug/L	200	26.9	1	11/04/24 13:07	11/18/24 13:08	7440-70-2	
Iron	**32.0J**	ug/L	50.0	9.1	1	11/04/24 13:07	11/18/24 13:08	7439-89-6	B
Magnesium	**97.8**	ug/L	50.0	20.1	1	11/04/24 13:07	11/18/24 13:08	7439-95-4	
Manganese	**1.9J**	ug/L	5.0	0.39	1	11/04/24 13:07	11/18/24 13:08	7439-96-5	B
Potassium	**9330**	ug/L	500	69.7	1	11/04/24 13:07	11/18/24 13:08	7440-09-7	
Sodium	**68100**	ug/L	500	115	1	11/04/24 13:07	11/18/24 13:08	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**41.0**	mg/L	20.0	10.5	1		11/13/24 18:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**506**	mg/L	10.0	10.0	1		11/07/24 14:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**20.0**	mg/L	1.0	0.53	1		11/14/24 19:00	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/14/24 19:00	16984-48-8	
Sulfate	**326**	mg/L	20.0	11.0	20		11/14/24 19:19	14808-79-8	CH

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-4S **Lab ID: 60463474017** Collected: 10/30/24 16:25 Received: 11/01/24 05:52 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	**2950**	ug/L	100	6.4	1	11/04/24 08:52	11/14/24 17:32	7440-42-8	
Calcium	**168000**	ug/L	200	26.9	1	11/04/24 08:52	11/14/24 17:32	7440-70-2	
Iron	**5850**	ug/L	50.0	9.1	1	11/04/24 08:52	11/14/24 17:32	7439-89-6	
Magnesium	**26900**	ug/L	50.0	20.1	1	11/04/24 08:52	11/14/24 17:32	7439-95-4	
Manganese	**1540**	ug/L	5.0	0.39	1	11/04/24 08:52	11/14/24 17:32	7439-96-5	
Potassium	**6830**	ug/L	500	69.7	1	11/04/24 08:52	11/14/24 17:32	7440-09-7	
Sodium	**64800**	ug/L	500	115	1	11/04/24 08:52	11/14/24 17:32	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**506**	mg/L	40.0	21.0	2		11/11/24 17:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**777**	mg/L	13.3	13.3	1		11/06/24 16:22		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**86.4**	mg/L	20.0	10.5	20		11/13/24 13:36	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/13/24 13:17	16984-48-8	
Sulfate	**106**	mg/L	20.0	11.0	20		11/13/24 13:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-7S **Lab ID: 60463474003** Collected: 10/29/24 11:45 Received: 10/30/24 06:50 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	**4870**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:28	7440-42-8	
Calcium	**162000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:28	7440-70-2	
Iron	**2840**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:28	7439-89-6	
Magnesium	**30400**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:28	7439-95-4	
Manganese	**966**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:28	7439-96-5	
Potassium	**6820**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:28	7440-09-7	
Sodium	**38200**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:28	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**473**	mg/L	20.0	10.5	1		11/11/24 15:04		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**697**	mg/L	13.3	13.3	1		11/05/24 13:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**9.2**	mg/L	1.0	0.53	1		11/20/24 16:55	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/20/24 16:55	16984-48-8	
Sulfate	**149**	mg/L	20.0	11.0	20		11/20/24 17:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-LMW-8S **Lab ID: 60463474004** Collected: 10/29/24 13:02 Received: 10/30/24 06:50 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	**721**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:29	7440-42-8	
Calcium	**82300**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:29	7440-70-2	
Iron	**426**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:29	7439-89-6	
Magnesium	**12900**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:29	7439-95-4	
Manganese	**71.2**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:29	7439-96-5	
Potassium	**4360**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:29	7440-09-7	
Sodium	**26700**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:29	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**294**	mg/L	20.0	10.5	1		11/11/24 15:31		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**349**	mg/L	10.0	10.0	1		11/05/24 13:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1.2**	mg/L	1.0	0.53	1		11/20/24 17:32	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.12	1		11/20/24 17:32	16984-48-8	
Sulfate	**24.7**	mg/L	20.0	11.0	20		11/20/24 17:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-BMW-1S **Lab ID: 60463474001** Collected: 10/28/24 11:42 Received: 10/30/24 06:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**84.8J**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:24	7440-42-8	
Calcium	**202000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:24	7440-70-2	
Iron	**27000**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:24	7439-89-6	
Magnesium	**36700**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:24	7439-95-4	
Manganese	**2570**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:24	7439-96-5	
Potassium	**5040**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:24	7440-09-7	
Sodium	**10900**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:24	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**628**	mg/L	40.0	21.0	2		11/11/24 14:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**744**	mg/L	13.3	13.3	1		11/04/24 14:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**4.5**	mg/L	1.0	0.53	1		11/20/24 15:01	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/20/24 15:01	16984-48-8	
Sulfate	**95.1**	mg/L	10.0	5.5	10		11/20/24 15:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60463456

Sample: L-BMW-2S **Lab ID: 60463474002** Collected: 10/28/24 09:40 Received: 10/30/24 06:50 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	**45.4J**	ug/L	100	6.4	1	10/31/24 09:09	11/14/24 11:26	7440-42-8	
Calcium	**121000**	ug/L	200	26.9	1	10/31/24 09:09	11/14/24 11:26	7440-70-2	
Iron	**<9.1**	ug/L	50.0	9.1	1	10/31/24 09:09	11/14/24 11:26	7439-89-6	
Magnesium	**17600**	ug/L	50.0	20.1	1	10/31/24 09:09	11/14/24 11:26	7439-95-4	
Manganese	**3.4J**	ug/L	5.0	0.39	1	10/31/24 09:09	11/14/24 11:26	7439-96-5	
Potassium	**5320**	ug/L	500	69.7	1	10/31/24 09:09	11/14/24 11:26	7440-09-7	
Sodium	**4600**	ug/L	500	115	1	10/31/24 09:09	11/14/24 11:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**353**	mg/L	20.0	10.5	1		11/11/24 14:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**436**	mg/L	10.0	10.0	1		11/04/24 14:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1.8**	mg/L	1.0	0.53	1		11/20/24 15:39	16887-00-6	
Fluoride	**<0.12**	mg/L	0.20	0.12	1		11/20/24 15:39	16984-48-8	
Sulfate	**13.7**	mg/L	1.0	0.55	1		11/20/24 15:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 914554
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: 60463456001, 60463456002, 60463456003, 60463456004, 60463474001, 60463474002, 60463474003, 60463474004

METHOD BLANK: 3620890 Matrix: Water
Associated Lab Samples: 60463456001, 60463456002, 60463456003, 60463456004, 60463474001, 60463474002, 60463474003, 60463474004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	11/14/24 10:57	
Calcium	ug/L	36.1J	200	26.9	11/14/24 10:57	
Iron	ug/L	<9.1	50.0	9.1	11/14/24 10:57	
Magnesium	ug/L	<20.1	50.0	20.1	11/14/24 10:57	
Manganese	ug/L	<0.39	5.0	0.39	11/14/24 10:57	
Potassium	ug/L	<69.7	500	69.7	11/14/24 10:57	
Sodium	ug/L	235J	500	115	11/14/24 10:57	

LABORATORY CONTROL SAMPLE: 3620891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	865	87	85-115	
Calcium	ug/L	10000	9330	93	85-115	
Iron	ug/L	10000	9170	92	85-115	
Magnesium	ug/L	10000	9050	90	85-115	
Manganese	ug/L	1000	945	95	85-115	
Potassium	ug/L	10000	9000	90	85-115	
Sodium	ug/L	10000	9460	95	85-115	

MATRIX SPIKE SAMPLE: 3620894

Parameter	Units	60463456004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	<6.4	1000	906	90	70-130	
Calcium	ug/L	50.8J	10000	9750	97	70-130	
Iron	ug/L	<9.1	10000	9680	97	70-130	
Magnesium	ug/L	<20.1	10000	9350	93	70-130	
Manganese	ug/L	<0.39	1000	990	99	70-130	
Potassium	ug/L	<69.7	10000	9350	93	70-130	
Sodium	ug/L	160J	10000	9880	97	70-130	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3621100 3621101

Parameter	Units	60463474005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	59.1J	1000	1000	1010	1030	95	97	70-130	2	20	
Calcium	ug/L	139000	10000	10000	148000	153000	89	137	70-130	3	20	M1
Iron	ug/L	8290	10000	10000	18000	18900	97	106	70-130	5	20	
Magnesium	ug/L	34100	10000	10000	43800	45300	97	111	70-130	3	20	
Manganese	ug/L	241	1000	1000	1240	1290	100	105	70-130	4	20	
Potassium	ug/L	4140	10000	10000	14200	14500	100	103	70-130	2	20	
Sodium	ug/L	10900	10000	10000	21000	21500	100	105	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 LCPB
Pace Project No.: 60463456

QC Batch: 914962
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: 60463474016, 60463474017

METHOD BLANK: 3622660 Matrix: Water
Associated Lab Samples: 60463474016, 60463474017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	11/18/24 11:37	
Calcium	ug/L	116J	200	26.9	11/18/24 11:37	
Iron	ug/L	<9.1	50.0	9.1	11/18/24 11:37	
Magnesium	ug/L	<20.1	50.0	20.1	11/18/24 11:37	
Manganese	ug/L	<0.39	5.0	0.39	11/18/24 11:37	
Potassium	ug/L	<69.7	500	69.7	11/18/24 11:37	
Sodium	ug/L	<115	500	115	11/18/24 11:37	

LABORATORY CONTROL SAMPLE: 3622661

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	922	92	85-115	
Calcium	ug/L	10000	10000	100	85-115	
Iron	ug/L	10000	10300	103	85-115	
Magnesium	ug/L	10000	9730	97	85-115	
Manganese	ug/L	1000	987	99	85-115	
Potassium	ug/L	10000	9620	96	85-115	
Sodium	ug/L	10000	10000	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3622662 3622663

Parameter	Units	60463713002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	ND	1000	1000	946	963	94	95	70-130	2	20	
Calcium	ug/L	ND	10000	10000	10200	10400	101	102	70-130	1	20	
Iron	ug/L	101	10000	10000	9910	10100	98	100	70-130	2	20	
Magnesium	ug/L	ND	10000	10000	9910	10000	99	100	70-130	1	20	
Manganese	ug/L	ND	1000	1000	1000	1010	100	101	70-130	1	20	
Potassium	ug/L	ND	10000	10000	9820	10000	97	99	70-130	2	20	
Sodium	ug/L	1260	10000	10000	11300	11400	101	102	70-130	1	20	

MATRIX SPIKE SAMPLE: 3622664

Parameter	Units	60463474017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	2950	1000	3890	94	70-130	
Calcium	ug/L	168000	10000	179000	106	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

MATRIX SPIKE SAMPLE: 3622664

Parameter	Units	60463474017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	5850	10000	15800	100	70-130	
Magnesium	ug/L	26900	10000	36600	96	70-130	
Manganese	ug/L	1540	1000	2520	98	70-130	
Potassium	ug/L	6830	10000	16600	97	70-130	
Sodium	ug/L	64800	10000	74500	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 914985
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: 60463456005

METHOD BLANK: 3622752 Matrix: Water
Associated Lab Samples: 60463456005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	11/15/24 12:16	
Calcium	ug/L	139J	200	26.9	11/15/24 12:16	
Iron	ug/L	<9.1	50.0	9.1	11/15/24 12:16	
Magnesium	ug/L	<20.1	50.0	20.1	11/15/24 12:16	
Manganese	ug/L	<0.39	5.0	0.39	11/15/24 12:16	
Potassium	ug/L	79.8J	500	69.7	11/15/24 12:16	
Sodium	ug/L	<115	500	115	11/15/24 12:16	

LABORATORY CONTROL SAMPLE: 3622753

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1000	100	85-115	
Calcium	ug/L	10000	10700	107	85-115	
Iron	ug/L	10000	10700	107	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1080	108	85-115	
Potassium	ug/L	10000	10400	104	85-115	
Sodium	ug/L	10000	10600	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3622754 3622755

Parameter	Units	60463456005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	88.8J	1000	1000	1040	1070	95	98	70-130	3	20	
Calcium	ug/L	152000	10000	10000	157000	157000	51	54	70-130	0	20	M1
Iron	ug/L	34.1J	10000	10000	10200	10800	102	107	70-130	5	20	
Magnesium	ug/L	12900	10000	10000	22100	22400	92	95	70-130	1	20	
Manganese	ug/L	6.3	1000	1000	1030	1080	102	107	70-130	5	20	
Potassium	ug/L	5060	10000	10000	14700	15000	96	99	70-130	2	20	
Sodium	ug/L	11000	10000	10000	20700	20900	96	99	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915063
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: 60463474030

METHOD BLANK: 3622965 Matrix: Water
Associated Lab Samples: 60463474030

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<6.4	100	6.4	11/18/24 12:42	
Calcium	ug/L	157J	200	26.9	11/18/24 12:42	
Iron	ug/L	25.6J	50.0	9.1	11/18/24 12:42	
Magnesium	ug/L	<20.1	50.0	20.1	11/18/24 12:42	
Manganese	ug/L	0.42J	5.0	0.39	11/18/24 12:42	
Potassium	ug/L	<69.7	500	69.7	11/18/24 12:42	
Sodium	ug/L	<115	500	115	11/18/24 12:42	

LABORATORY CONTROL SAMPLE: 3622966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	932	93	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10100	101	85-115	
Magnesium	ug/L	10000	9790	98	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	9720	97	85-115	
Sodium	ug/L	10000	9940	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3622967 3622968

Parameter	Units	60463453012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	427	1000	1000	1380	1220	95	79	70-130	12	20	
Calcium	ug/L	149000	10000	10000	159000	160000	96	108	70-130	1	20	
Iron	ug/L	20000	10000	10000	29700	28600	96	86	70-130	4	20	
Magnesium	ug/L	35800	10000	10000	45700	44500	98	87	70-130	3	20	
Manganese	ug/L	449	1000	1000	1450	1280	100	83	70-130	13	20	
Potassium	ug/L	6170	10000	10000	16100	14500	100	83	70-130	11	20	
Sodium	ug/L	19500	10000	10000	29300	27800	98	83	70-130	5	20	

MATRIX SPIKE SAMPLE: 3622969

Parameter	Units	60463474031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	316	1000	1280	96	70-130	
Calcium	ug/L	187000	10000	196000	90	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

MATRIX SPIKE SAMPLE: 3622969

Parameter	Units	60463474031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	7160	10000	17500	104	70-130	
Magnesium	ug/L	37800	10000	47700	99	70-130	
Manganese	ug/L	1130	1000	2140	102	70-130	
Potassium	ug/L	7070	10000	17400	103	70-130	
Sodium	ug/L	49800	10000	60000	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915877 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463456001, 60463456002, 60463456003, 60463456004, 60463474001, 60463474002, 60463474003

METHOD BLANK: 3626396 Matrix: Water
Associated Lab Samples: 60463456001, 60463456002, 60463456003, 60463456004, 60463474001, 60463474002, 60463474003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	11/11/24 12:30	

LABORATORY CONTROL SAMPLE: 3626397

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	482	96	90-110	

SAMPLE DUPLICATE: 3626398

Parameter	Units	60462617001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	278	274	2	10	H1

SAMPLE DUPLICATE: 3626399

Parameter	Units	60463456004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	<10.5		10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915879
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463474004, 60463474016, 60463474017

METHOD BLANK: 3626404 Matrix: Water
Associated Lab Samples: 60463474004, 60463474016, 60463474017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	11/11/24 15:22	

LABORATORY CONTROL SAMPLE: 3626405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	494	99	90-110	

SAMPLE DUPLICATE: 3626406

Parameter	Units	60463474005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	506	510	1	10	

SAMPLE DUPLICATE: 3626407

Parameter	Units	60463474006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	332	325	2	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 916261
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463456005, 60463474030

METHOD BLANK: 3627540 Matrix: Water
Associated Lab Samples: 60463456005, 60463474030

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.5	20.0	10.5	11/13/24 16:41	

LABORATORY CONTROL SAMPLE: 3627541

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	485	97	90-110	

SAMPLE DUPLICATE: 3627542

Parameter	Units	60463456005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	415	423	2	10	

SAMPLE DUPLICATE: 3627543

Parameter	Units	60463710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	648	630	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915015
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463456001, 60463456004, 60463474001, 60463474002

METHOD BLANK: 3622827 Matrix: Water
Associated Lab Samples: 60463456001, 60463456004, 60463474001, 60463474002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/04/24 14:53	

LABORATORY CONTROL SAMPLE: 3622828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	986	99	80-120	

SAMPLE DUPLICATE: 3622829

Parameter	Units	60463342004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	211	210	0	10	

SAMPLE DUPLICATE: 3622830

Parameter	Units	60463453004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	544	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915200
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463456002, 60463456003, 60463474003, 60463474004

METHOD BLANK: 3623358 Matrix: Water
Associated Lab Samples: 60463456002, 60463456003, 60463474003, 60463474004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/05/24 13:36	

LABORATORY CONTROL SAMPLE: 3623359

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

SAMPLE DUPLICATE: 3623360

Parameter	Units	60463474005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	536	534	0	10	

SAMPLE DUPLICATE: 3623361

Parameter	Units	60463474006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	613	601	2	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915374
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463474016, 60463474017

METHOD BLANK: 3623979 Matrix: Water
Associated Lab Samples: 60463474016, 60463474017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/06/24 16:21	

LABORATORY CONTROL SAMPLE: 3623980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	990	99	80-120	

SAMPLE DUPLICATE: 3623981

Parameter	Units	60463589002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	858	840	2	10	

SAMPLE DUPLICATE: 3623982

Parameter	Units	60463453008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	472	498	5	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 915563
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60463456005, 60463474030

METHOD BLANK: 3624813 Matrix: Water
Associated Lab Samples: 60463456005, 60463474030

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/07/24 14:07	

LABORATORY CONTROL SAMPLE: 3624814

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

SAMPLE DUPLICATE: 3624815

Parameter	Units	60463456005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	453	452	0	10	

SAMPLE DUPLICATE: 3624816

Parameter	Units	60463710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	769	775	1	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 916152
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: 60463456005, 60463474016, 60463474017

METHOD BLANK: 3627172 Matrix: Water
Associated Lab Samples: 60463456005, 60463474016, 60463474017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/13/24 02:02	
Fluoride	mg/L	<0.12	0.20	0.12	11/13/24 02:02	
Sulfate	mg/L	<0.55	1.0	0.55	11/13/24 02:02	

LABORATORY CONTROL SAMPLE: 3627173

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	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3627174 3627175

Parameter	Units	60463456005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.5	5	5	8.3	8.7	96	104	80-120	4	15	
Fluoride	mg/L	<0.12	2.5	2.5	2.5	2.7	99	107	80-120	8	15	
Sulfate	mg/L	7.4	5	5	12.6	13.1	105	114	80-120	4	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3627177 3627178

Parameter	Units	60463710002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	10.3	10	10	18.2	18.1	79	79	80-120	0	15	M1
Fluoride	mg/L	<0.12	2.5	2.5	2.3	2.4	93	97	80-120	4	15	
Sulfate	mg/L	95.7	100	100	202	198	107	102	80-120	2	15	

SAMPLE DUPLICATE: 3627176

Parameter	Units	60463456005 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	3.5	4.1	16	15	D6
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	7.4	7.3	1	15	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

SAMPLE DUPLICATE: 3627179

Parameter	Units	60463710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	10.3	10.2	0	15	
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	95.7	94.1	2	15	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 916325
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: 60463474030

METHOD BLANK: 3627881 Matrix: Water
Associated Lab Samples: 60463474030

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/14/24 09:43	
Fluoride	mg/L	<0.12	0.20	0.12	11/14/24 09:43	
Sulfate	mg/L	<0.55	1.0	0.55	11/14/24 09:43	

LABORATORY CONTROL SAMPLE: 3627882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	5.4	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3627883 3627884

Parameter	Units	60463710004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.1	5	5	7.3	6.7	103	92	80-120	8	15	
Fluoride	mg/L	<0.12	2.5	2.5	2.8	2.5	109	96	80-120	12	15	
Sulfate	mg/L	30.2	100	100	168	173	138	143	80-120	3	15	M1

MATRIX SPIKE SAMPLE: 3627885

Parameter	Units	60463474031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	115	100	194	79	80-120	M1
Fluoride	mg/L	<0.12	2.5	2.4	97	80-120	
Sulfate	mg/L	14.9	5	21.4	131	80-120	CH,E,M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60463456

QC Batch: 916711
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: 60463456001, 60463456002, 60463456003, 60463456004

METHOD BLANK: 3629868 Matrix: Water
Associated Lab Samples: 60463456001, 60463456002, 60463456003, 60463456004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/19/24 09:52	
Fluoride	mg/L	<0.12	0.20	0.12	11/19/24 09:52	
Sulfate	mg/L	<0.55	1.0	0.55	11/19/24 09:52	CL

LABORATORY CONTROL SAMPLE: 3629869

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	96	90-110	
Sulfate	mg/L	5	4.9	98	90-110	CL

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3629870 3629871

Parameter	Units	60464071004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	156	100	100	244	249	88	93	80-120	2	15	
Fluoride	mg/L	ND	50	50	49.8	53.0	100	106	80-120	6	15	
Sulfate	mg/L	247	100	100	355	362	108	115	80-120	2	15	CL

MATRIX SPIKE SAMPLE: 3629872

Parameter	Units	60464126004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1160	2500	3350	88	80-120	
Fluoride	mg/L	ND	1250	1260	101	80-120	
Sulfate	mg/L	3400	2500	6300	116	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 LCPB
Pace Project No.: 60463456

QC Batch: 916715
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: 60463474001, 60463474002, 60463474003, 60463474004

METHOD BLANK: 3629889 Matrix: Water
Associated Lab Samples: 60463474001, 60463474002, 60463474003, 60463474004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	11/20/24 09:18	
Fluoride	mg/L	<0.12	0.20	0.12	11/20/24 09:18	
Sulfate	mg/L	<0.55	1.0	0.55	11/20/24 09:18	

LABORATORY CONTROL SAMPLE: 3629890

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	2.6	104	90-110	
Sulfate	mg/L	5	4.6	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3629891 3629892

Parameter	Units	60463453001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	42.6	100	100	134	156	92	113	80-120	15	15	
Fluoride	mg/L	<0.12	2.5	2.5	2.2	2.8	88	112	80-120	24	15	R1
Sulfate	mg/L	150	100	100	257	283	106	133	80-120	10	15	M1

MATRIX SPIKE SAMPLE: 3629893

Parameter	Units	60463474007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	31.8	100	125	93	80-120	
Fluoride	mg/L	<0.12	2.5	2.4	95	80-120	
Sulfate	mg/L	532	250	868	134	80-120	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 LCPB
Pace Project No.: 60463456

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
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Lenexa, KS 66219
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LCPB
Pace Project No.: 60463456

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60463456001	**L-LMW-3S**	EPA 200.7	914554	EPA 200.7	914652
60463456002	**L-LMW-6S**	EPA 200.7	914554	EPA 200.7	914652
60463456003	**L-LMW-DUP-1**	EPA 200.7	914554	EPA 200.7	914652
60463456004	**L-LMW-FB-1**	EPA 200.7	914554	EPA 200.7	914652
60463474001	**L-BMW-1S**	EPA 200.7	914554	EPA 200.7	914652
60463474002	**L-BMW-2S**	EPA 200.7	914554	EPA 200.7	914652
60463474003	**L-LMW-7S**	EPA 200.7	914554	EPA 200.7	914652
60463474004	**L-LMW-8S**	EPA 200.7	914554	EPA 200.7	914652
60463474016	**L-LMW-1S**	EPA 200.7	914962	EPA 200.7	915011
60463474017	**L-LMW-4S**	EPA 200.7	914962	EPA 200.7	915011
60463456005	**L-LMW-5S**	EPA 200.7	914985	EPA 200.7	915106
60463474030	**L-LMW-2S**	EPA 200.7	915063	EPA 200.7	915104
60463456001	**L-LMW-3S**	SM 2320B	915877		
60463456002	**L-LMW-6S**	SM 2320B	915877		
60463456003	**L-LMW-DUP-1**	SM 2320B	915877		
60463456004	**L-LMW-FB-1**	SM 2320B	915877		
60463474001	**L-BMW-1S**	SM 2320B	915877		
60463474002	**L-BMW-2S**	SM 2320B	915877		
60463474003	**L-LMW-7S**	SM 2320B	915877		
60463474004	**L-LMW-8S**	SM 2320B	915879		
60463474016	**L-LMW-1S**	SM 2320B	915879		
60463474017	**L-LMW-4S**	SM 2320B	915879		
60463456005	**L-LMW-5S**	SM 2320B	916261		
60463474030	**L-LMW-2S**	SM 2320B	916261		
60463456001	**L-LMW-3S**	SM 2540C	915015		
60463456002	**L-LMW-6S**	SM 2540C	915200		
60463456003	**L-LMW-DUP-1**	SM 2540C	915200		
60463456004	**L-LMW-FB-1**	SM 2540C	915015		
60463474001	**L-BMW-1S**	SM 2540C	915015		
60463474002	**L-BMW-2S**	SM 2540C	915015		
60463474003	**L-LMW-7S**	SM 2540C	915200		
60463474004	**L-LMW-8S**	SM 2540C	915200		
60463474016	**L-LMW-1S**	SM 2540C	915374		
60463474017	**L-LMW-4S**	SM 2540C	915374		
60463456005	**L-LMW-5S**	SM 2540C	915563		
60463474030	**L-LMW-2S**	SM 2540C	915563		
60463456001	**L-LMW-3S**	EPA 300.0	916711		
60463456002	**L-LMW-6S**	EPA 300.0	916711		
60463456003	**L-LMW-DUP-1**	EPA 300.0	916711		
60463456004	**L-LMW-FB-1**	EPA 300.0	916711		
60463474001	**L-BMW-1S**	EPA 300.0	916715		
60463474002	**L-BMW-2S**	EPA 300.0	916715		

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 LCPB
Pace Project No.: 60463456

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60463474003	**L-LMW-7S**	EPA 300.0	916715		
60463474004	**L-LMW-8S**	EPA 300.0	916715		
60463474016	**L-LMW-1S**	EPA 300.0	916152		
60463474017	**L-LMW-4S**	EPA 300.0	916152		
60463456005	**L-LMW-5S**	EPA 300.0	916152		
60463474030	**L-LMW-2S**	EPA 300.0	916325		

WO# : 60463456

60463456

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): **As-read** 0.5/1.5 **Corr. Factor** -0.1 **Corrected** 0.4/1.4

Temperature should be above freezing to 6°C 18.5/17.1 18.4/17.1

Date and initials of person examining contents: 10/30/24

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 68727	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60463456

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	COD / TOC	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228	Sample Comment
Specify Container Size **										1	1	3	3	3	3	3	1	
Identify Container Preservative Type***										1	1	3	2	2	2	3	2	
Analysis Requested																		
L-LMW-3S	WT	G			10/28/24	1552	6			✓	✓	✓	✓	✓	✓	✓	✓	
L-LMW-5S	WT																	
L-LMW-6S	WT	G			10/29/24	0947	6			✓	✓	✓	✓	✓	✓	✓	✓	
L-LMW-DUP-1	WT	G			10/29/24	—	6			✓	✓	✓	✓	✓	✓	✓	✓	
L-LMW-FB-1	WT	G			10/28/24	1604	6			✓	✓	✓	✓	✓	✓	✓	✓	
L-LMW-MS-1	WT																	
L-LMW-MSD-2	WT																	
L-BMW-1S	WT	G			10/28/24	1142	6			✓	✓	✓	✓	✓	✓	✓	✓	
L-BMW-2S	WT	G			1	0940	6			✓	✓	✓	✓	✓	✓	✓	✓	

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

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

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3162943

Preservation non-conformance identified for sample:

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
4	T298	-0.1		0.4/1.4/2.4	1-4

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Rsd / Rocksmith	10/29/24 - 1600		10/30/24 0650
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

Tracking Number:

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

Page: 1 of

Client: Rocksmith Geoeng Profile/EZ #: 3162943

Site: Notes

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

Container Codes

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

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

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

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

Work Order Number: 60463456

WO# : 60463456

60463456

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): As-read 12/13.6 Corr. Factor -0.1 Corrected 11/13.5

Date and initials of person examining contents: PM 11/1/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 88727	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60463456

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	COD / TOC	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228		Sample Comment
L-LMW-3S	WT																		
L-LMW-5S	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓		
L-LMW-6S	WT																		
L-LMW-DUP-1	WT																		
L-LMW-FB-1	WT																		
L-LMW-MS-1	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓		
L-LMW-MSD-1	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓		
L-LMW-1S	WT	G			10/30/24	0945	6			✓	✓	✓	✓	✓	✓	✓	✓	4	
L-LMW-4S	WT	G			10/30/24	1625	6			✓	✓	✓	✓	✓	✓	✓	✓	6	

Specify Container Size **: 1L | 1 | 3 | 3 | 3 | 3 | 3 | 1

Identify Container Preservative Type***: 1 | 1 | 3 | 2 | 2 | 2 | 3 | 2

Analysis Requested

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

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

Lab Use Only

Proj. Mgr: Jamie Church

AcctNum / Client ID:

Table #:

Profile / Template: 15857

Prelog / Bottle Ord. ID: EZ 3162943

Preservation non-conformance identified for sample.

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By: (Printed Name) John Rasmussen

Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp (°C)	On Ice:
2	T298	-0.1		1.1/3.5	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith/AM/John Rasmussen			11/1/24 0952	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

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

Client: Rocksmith Geoeng Profile/EZ #:

Site: Notes: Append to 60463456

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3B	BP3Z	WPDU	ZPLC	Other		
1																																
2	WT												6						3			2	3									
3																																
4																																
5																																
6	WT																					2										
7	WT																					2										
8																																
9																																
10																																
11																																
12																																

Container Codes

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

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

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

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

Work Order Number: 60463456

WO# : 60463456

60463456

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

Client Name: Rocksmith Geoeng

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

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

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

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

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

Cooler Temperature (°C): As-read 12/13.6 Corr. Factor -0.1 Corrected 11/13.5

Date and initials of person examining contents: PW 11/1/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 88727	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Qualtrax Document ID: 30468

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

60463456

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

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

County / State origin of sample(s): Missouri

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

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

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

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

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

Analysis:

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	COD / TOC	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228			Sample Comment	Preservation non-conformance identified for sample
Specify Container Size **										1	1	3	3	3	3	3	1				
Identify Container Preservative Type***										1	1	3	2	2	2	3	2				
L-LMW-3S	WT																				
L-LMW-5S	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓				
L-LMW-6S	WT																				
L-LMW-DUP-1	WT																				
L-LMW-FB-1	WT																				
L-LMW-MS-1	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓				
L-LMW-MSD-1	WT	G			10/31/24	0915	6			✓	✓	✓	✓	✓	✓	✓	✓				
L-LMW-1S	WT	G			10/30/24	0945	6			✓	✓	✓	✓	✓	✓	✓	✓	4			
L-LMW-4S	WT	G			10/30/24	1625	6			✓	✓	✓	✓	✓	✓	✓	✓	4			

Lab Use Only
Proj. Mgr: Jamie Church
AcctNum / Client ID:
Table #:
Profile / Template: 15857
Prelog / Bottle Ord. ID: EZ 3162943

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

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

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp (°C)	On Ice:
2	T298	-0.1	1.1	1.3-5	

Relinquished by/Company: (Signature) Rocksmith / John Rasmussen	Date/Time:	Received by/Company: (Signature) MSE	Date/Time: 11/1/24 0552	Tracking Number:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

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

Client: Rocksmith Geoeng Profile/EZ #:

Site: Notes: Append to 60463456

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3B	BP3Z	WPDU	ZPLC	Other		
1																																
2	WT												6						3			2	3									
3																																
4																																
5																																
6	WT																					2										
7	WT																					2										
8																																
9																																
10																																
11																																
12																																

Container Codes

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

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

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

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

Work Order Number: 60463456

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

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Rocksmith Geoengineering, LLC	Contact/Report To:	Mark Haddock
Street Address:	2320 Creve Coeur Mill Road, Maryland Heights, MO 63043	Phone #:	314-974-6578
		E-Mail:	mark.haddock@rocksmithgeo.com
		Cc E-Mail:	
Customer Project #:	COC# 3		
Project Name:	AMEREN LCPB	Invoice To:	Mark Haddock
		Invoice E-Mail:	mark.haddock@rocksmithgeo.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET		County / State origin of sample(s):	Missouri
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other	Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No		
	Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____	DW PWSID # or WW Permit # as applicable:	
	Date Results Requested:	Field Filtered (if applicable): [ ] Yes [ ] No	
		Analysis:	

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

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

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

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	Chloride/Fluoride/Sulfate	TDS / Alkalinity	COD / TOC	App III and Cat/An Metals (200.7)*	Appendix IV Metals (200.7/200.8/7470)*	UWL Metals (200.7)***	TOX	Radium 226 & Radium 228	Sample Comment
L-LMW-3S	WT																	
L-LMW-5S	WT																	
L-LMW-6S	WT																	
L-LMW-DUP-1	WT																	
L-LMW-FB-1	WT																	
L-LMW-MS-1	WT																	
L-LMW-MSD-2	WT																	
L-LMW-2S	WT	G			11/1/24	1345	6			✓	✓	✓	✓	✓	✓	✓	✓	

Lab Use Only: Proj. Mgr: Jamie Church; AcctNum / Client ID:; Table #:; Profile / Template: 15857; Prelog / Bottle Ord. ID: EZ 3162943

Preservation non-conformance identified for sample:

Additional Instructions from Pace®:
* App III and Cat/An Metals* - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B
**App IV Metals -EPA 200.7: Ba,Be,Co,Pb, Li,Mo & 200.8 Metals - Sb, As, Cd, Cr, Se,Tl +7470 Hg
***UWL Metals - 200.7: Al, Cu, Ni, Ag, Zn + Hardness

Collected By: (Printed Name) John Rasmussen
Signature:

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)	On Ice:
	T298	-0.1	4.5	4.4	

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Rocksmith	11/1/24 1600		11-2 0536	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

E208

Internal Transfer Chain of Custody

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MO
Cert. Needed: ☐ Yes ☒ No

Workorder: 60463456 **Workorder Name:** AMEREN LCPB

Owner Received Date: 10/30/2024 **Results Requested By:** 11/15/2024

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: H2SO4	TOX	LAB USE ONLY
1	L-LMW-3S	PS	10/28/2024 15:52	60463456001	Water	1	X	01
2	L-LMW-6S	PS	10/29/2024 09:47	60463456002	Water	1	X	02
3	L-LMW-DUP-1	PS	10/29/2024 08:00	60463456003	Water	1	X	03
4	L-LMW-FB-1	PS	10/28/2024 16:04	60463456004	Water	1	X	04
5	L-LMW-5S	RQS	10/31/2024 09:15	60463456005	Water	3	X	05

LA945726

Transfers	Released By	Date/Time	Received By	Date/Time
1			Li Dawn 17	11-5-24 / 0900
2				
3				

Comments

KS sample location: 6091-R14-S4B

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Receipt Checklist

COC Seal Present/Intact:	Y✓ N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres. Correct/Check:	Y N
Correct bottles used:	Y N	multi	
Sufficient volume sent:	Y N		
RA Screen <0.5 mR/hr:	✓ Y N		

Fed Ex tracking #	Gun ID	Temperature
4033 6452 3298	MSA9	5.0 + 0.3 = 5.3
4033 6452 3265	MSA9	3.9 + 0.3 = 4.2
~~4033 6452 3238~~		
4033 6452 3287	MSA9	4.9 + 0.3 = 5.2
4033 6452 3276	MSA9	5.5 + 0.3 = 5.8

EI: Dossett

Name

11-5-24

Date

Internal Transfer Chain of Custody

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MO
Cert. Needed: ☐ Yes ☒ No

Workorder: 60463456 **Workorder Name:** AMEREN LCPB

Owner Received Date: 10/30/2024 **Results Requested By:** 11/15/2024

Report To	Subcontract To
Jamie Church Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 314-838-7223	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3						Requested Analysis Radium 226	Radium 228											LAB USE ONLY
1	L-LMW-3S	PS	10/28/2024 15:52	60463456001	Water	2						X	X											001
2	L-LMW-6S	PS	10/29/2024 09:47	60463456002	Water	2						X	X											002
3	L-LMW-DUP-1	PS	10/29/2024 08:00	60463456003	Water	2						X	X											003
4	L-LMW-FB-1	PS	10/28/2024 16:04	60463456004	Water	2						X	X											004
5	L-LMW-5S	RQS	10/31/2024 09:15	60463456005	Water	2						X	X											005
6	L-LMW-MS-1	PS	10/31/2024 09:15	60463456006	Water	2						X	X											006
7	L-LMW-MSD-1	PS	10/31/2024 09:15	60463456007	Water	2						X	X											007

Transfers	Released By	Date/Time	Received By	Date/Time
1			[signature]	11/6/24 1000
2				
3				

Comments

KS sample location: 60-R01-S4A

Cooler Temperature on Receipt ~ °C | **Custody Seal** Y or (N) | **Received on Ice** Y or (N) | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

WO# : 30731582

30731582

DC#_Title: ENV-FRM-GBUR-0088 v07_Sample Condition Upon Receipt-Greensburg

Effective Date: 01/04/2024

WO# : 30731582

PM: MAR Due Date: 11/27/24

CLIENT: PACE_60_LEKS

Client Name: Pace-KS

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking Number: 4033 6452 3953

Initial / Date

Examined By: PS 11/6/24

Labeled By: PS 11/6/24

Temped By: ____

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

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

Cooler Temperature: Observed Temp ____ °C Correction Factor: ____ °C Final Temp: ____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot# 1001041 / D.P.D. Residual Chlorine Lot # ____
Chain of Custody Present	✓			1.
Chain of Custody Filled Out:	✓			2.
-Were client corrections present on COC		✓		
Chain of Custody Relinquished		✓		3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC:	✓			5.
-Includes date/time/ID				
Matrix: WT				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous samples field filtered:			✓	13.
Organic Samples checked for dichlorination			✓	14:
Filtered volume received for dissolved tests:			✓	15:
All containers checked for preservation:	✓			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix				pH<2
All containers meet method preservation requirements:	✓			Initial when completed PS / Date/Time of Preservation
				Lot# of added Preservative
8260C/D: Headspace in VOA Vials (> 6mm)			✓	17.
624.1: Headspace in VOA Vials (0mm)			✓	18.
Radon: Headspace in RAD Vials (0mm)			✓	19.
Trip Blank Present:			✓	Trip blank custody seal present? YES or NO
Rad Samples Screened <.05 mrem/hr.	✓			Initial when completed PS / Date: 11/6/24 / Survey Meter SN: 25014380

Comments:

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.
PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.

Qualtrax ID: 55680

Memorandum

January 22, 2025

To:	Project File Rocksmith Geoengineering, LLC	**Project Number:**	23007-24
CC:	Mark Haddock, Jeffrey Ingram		
From:	Jack Rasmussen	**Email:**	grant.morey@rocksmithgeo.com
RE:	**Data Validation Summary, Labadie Energy Center – LCPB – Data Package 6043456**		

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

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J, J+ for estimates based high, and J- for estimates based low).
- When a compound was detected in a sample result between the Method Detection Limit (MDL) and Practical Quantification Limit (PQL), the results were recorded at the detection value and qualified as estimates (J).
- When instrument calibration did not meet control standards, associated results were qualified as estimates (J).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Rocksmith Geoengineering
Project Manager: J. Ingram
Project Name: Ameren LCPB
Project Number: 23007-24
Reviewer: J. Rasmussen
Validation Date: 01/22/2025

Laboratory: Pace Analytical
SDG #: 60463456
Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM 2320B (Alkalinity); SM 2540C (TDS); EPA 300.0 (Anions);
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ SM 4500-S-2 (Sulfide)
Sample Names L-LMW-3S, L-LMW-6S, L-LMW-DUP-1, L-LMW-FB-1, L-LMW-5S, L-LMW-MS-1, L-LMW-MSD-1, L-LMW-1S, L-LMW-2S, L-LMW-4S L-LMW-7S, L-LMW-8S, L-BMW-1S, L-BMW-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			10/28/24-11/01/24
b) Sampling team indicated?	x			JTR/JDQ
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Spec Cond, Turb, Temp, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	No lab narrative.

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			L-LMW-DUP-1 @ L-LMW-6S
b) Were field dup. precision criteria met (note RPD)?	x			
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			See Notes
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

General:

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

Sulfate @ L-LMW-2S exceeded calibration acceptance limits, result may be biased high and qualified as estimate.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

Method Blanks:

3620890: calcium (36.1J) and sodium (235J), associated with samples -001 through -004. -004, calcium and sodium < 10x blank and RL results qualified as non detect. All other results > 10x blank and RL, no qualification necessary.

3622660: calcium (116J), associated with samples -016 and -017. All results > 10x blank and RL, no qualification necessary.

3622752: calcium (139J) & potassium (79.8J), associated with sample -005. All results > 10x blank and RL, no qualification necessary.

3622965: calcium (157J), iron (25.6J), and manganese (0.42J); associated with sample -030. Iron and manganese, < 10x blank and RL, results qualified as non detect. All other results > 10x blank and RL, no qualification necessary.

Field Blanks:

L-LMW-FB-1 @ L-LMW-3S: calcium (50.8J) and sodium (160J), all results > 10x blank and RL, no qualification necessary.

Lab Duplicates:

3627176: RPD control (15%) exceeded for chloride (16%), associated with sample -005. Result qualified as estimate.

Max RPD for lab duplicates: alkalinity, TDS: 10%; chloride, fluoride, sulfate: 15%.

MS/MSD:

3621100/3621101: MSD recovery for calcium, MS recovery and RPD within controls. Associated with unrelated sample, no qualification necessary.

3622754/3622755: MS/MSD recovery low for calcium, RPD within controls. Associated with sample -005, result qualified as estimate.

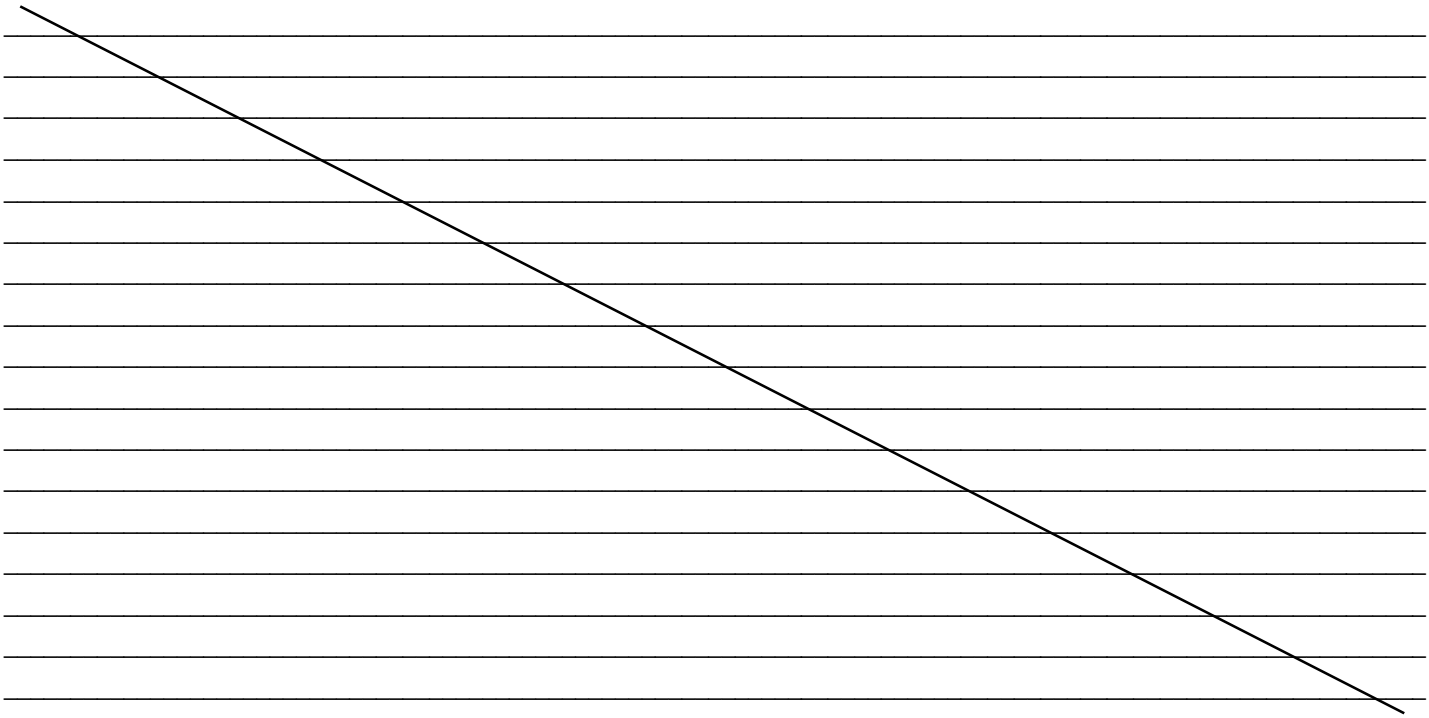
3627177/3627178: MS/MSD recoveries low for chloride, RPD within control. Associated with unrelated sample, no qualification necessary.

3627883/3627884: MS/MSD recovery high for sulfate, RPD within control. Associated with unrelated sample, no qualification necessary.

3627885: MS recovery low for chloride and MS recovery high for sulfate. Associated with unrelated sample, no qualification necessary.

3629891/3629892: MSD recovery high for sulfate, MS recovery and RPD within control. RPD exceeds control limit for fluoride. Associated with unrelated sample, no qualification necessary.

3629893: MS recovery high for sulfate. Associated with unrelated sample, no qualification necessary.



QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-FB-1	Calcium	200	U	Detected in blank, result < 10x blank and RL
"	Sodium	500	U	"
L-LMW-2S	Iron	50	U	"
"	Manganese	5.0	U	"
L-LMW-5S	Chloride	3.5	J	Lab duplicate RPD exceeds control
L-LMW-2S	Sulfate	326	J+	Analyte concentration exceeded calibration limit
L-LMW-5S	Calcium	152000	J-	MS/MSD low, RPD okay

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Date: 01/22/2025

Appendix B

Alternative Source Demonstration – November 2023 Sampling Event

Technical Memoranum

July 23, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:**	23007-24
From:	Mark Haddock, P.E., R.G., Jeff Ingram, R.G.	**Email:**	jeff.ingram@rocksmithgeo.com
RE :	**LCPB – Alternative Source Demonstration – November 2023 Sampling Event**		

1.0 INTRODUCTION

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

2.0 BACKGROUND

The first Detection Monitoring sampling event at the LEC's LCPB CCR Unit in Franklin County, Missouri was completed in November 2017. 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, and it was determined that the SSIs in the CCR Rule groundwater monitoring wells at the LCPB were not caused by impacts from the LCPB. The ASD report for the November 2017 monitoring results and subsequent ASDs indicated that the SSIs observed in the LCPB wells were caused by the adjacent LCPA surface impoundment. This conclusion was supported by lines of evidence (LOEs) as follows.

- Geochemical Signatures
- USEPA FALCON Analysis
- Groundwater Flow Directions
- Methods Used to Construct the SCPB

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

ASD reports are included in LCPB Annual Groundwater Monitoring and Corrective Action Reports.

3.0 NOVEMBER 2023 SAMPLING EVENT

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

- **Geochemical Signatures** - As reflected on the piper diagram provided in **Figure 1**, LCPA porewater has a distinctly different signature than the porewater from the LCPB. Groundwater samples in monitoring wells with SSIs plot on the piper diagrams in a location between the LCPA porewater zone and the background groundwater zone, indicating that well water chemistry is a mixture of unaffected groundwater and groundwater impacted by the LCPA.
- **USEPA FALCON Analysis** – The USEPA FALCON method was used to compare constituent fingerprints from the downgradient monitoring wells with those of background groundwater, LCPB porewater, and LCPA porewater. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A**. An updated calculation using data from the November 2023 sampling event was completed and a summary of the results is provided in Table 5 of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both LCPA porewater and background groundwater, while there is low correlation between downgradient monitoring well data and LCPB porewater. These same correlations were found at depth within the alluvial aquifer.
- **Groundwater Flow Direction** - Potentiometric surface mapping from 2018 through 2023 continues to show that, while groundwater flow conditions are variable, net groundwater flow is toward the north or northeast, flowing from the bluffs toward the Missouri River. This supports the conclusion that the unlined LCPA is the source of impacts at the LCPB downgradient monitoring wells because the impacted monitoring wells around the LCPB are generally located downgradient of the LCPA.
- **LCPB Construction** - The LCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 460 feet above mean sea level (FT MSL). The low permeability HDPE liner system in the LCPB is a barrier to the migration of CCR-influenced water and provides containment for CCR. The LCPA is unlined, was built in the early 1970s and has a bottom elevation estimated at approximately 410 FT MSL, which is much deeper than the LCPB. In addition to the distinct porewater fingerprint for LCPA relative to LCPB, there are elevated concentrations of CCR indicators in the intermediate and deep zones of groundwater in the alluvial aquifer surrounding the LCPA, as shown in the LCPA Annual Reports. Around the LCPA, impacts are present in the shallow, intermediate (middle), and deep alluvial zones, and are not isolated to the shallow zone, where LCPB impacts would most readily occur. The impacts to the intermediate and deep alluvial zones are most likely from the LCPA, where the base elevation extends into deeper groundwater zones in the aquifer.

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

4.0 CERTIFICATION STATEMENT

This *LCPB – Alternative Source Demonstration – November 2023 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a Licensed Professional Engineer with Rocksmith Geoengineering, LLC.

I hereby certify that this *LCPB – Alternative Source Demonstration – November 2023 Sampling Event* located at 226 Labadie Power Plant Road, Labadie, Missouri 63055 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

Rocksmith Geoengineering, LLC

_____

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

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

Tables

Table 1
November 2023 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

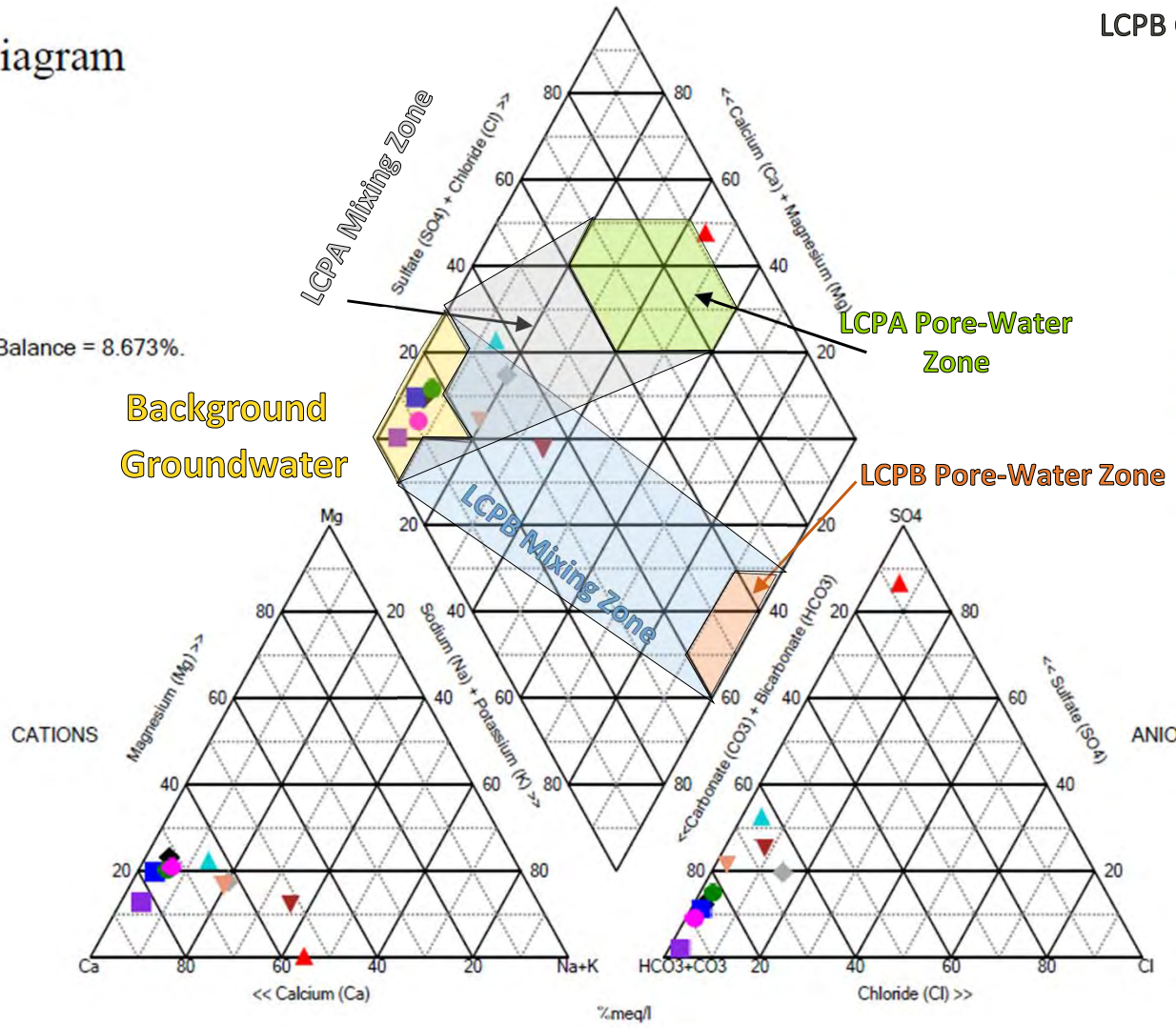
			BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S
November 2023 Detection Monitoring Event												
DATE	NA	NA	11/16/2023	11/16/2023	11/16/2023	11/20/2023	11/20/2023	11/17/2023	11/16/2023	11/15/2023	11/15/2023	11/16/2023
pH	SU	6.416-7.307	6.71	7.04	7.16	9.54	7.12	6.88	6.79	6.89	6.82	7.02
BORON, TOTAL	µg/L	141.2	113	50.8 J	1,060	3,450	4,220	3,470	55.0 J	806	6,580	1,550
CALCIUM, TOTAL	µg/L	221,000	208,000	150,000	103,000	84,300	109,000	178,000	154,000	131,000	184,000	118,000
CHLORIDE, TOTAL	mg/L	7.564	5.3	2.8	4.0	15.0	21.1	60.7	3.9	3.2	13.5	3.9
FLUORIDE, TOTAL	mg/L	0.2154	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	75.18	72.4	38.3	41.2	337	92.3	116	7.9 J	31.6	192	79.2
TOTAL DISSOLVED SOLIDS	mg/L	828	692	471	348	533 J	671	722	434	479 J	607	462
February 2024 Verification Sampling Event												
DATE	NA	NA										2/12/2024
pH	SU	6.416-7.307										
BORON, TOTAL	µg/L	141.2										
CALCIUM, TOTAL	µg/L	221,000										
CHLORIDE, TOTAL	mg/L	7.564										
FLUORIDE, TOTAL	mg/L	0.2154										
SULFATE, TOTAL	mg/L	75.18										113 J
TOTAL DISSOLVED SOLIDS	mg/L	828										

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

Prepared By: GTM
Checked By: ANT
Reviewed By: JSI

Figures

Piper Diagram



Cation-Anion Balance = 8.673%.

LCPB CCR Rule Monitoring Wells

- L-BMW-1S* 2023-11-16
- L-BMW-2S* 2023-11-16
- L-LMW-1S 2023-11-16
- L-LMW-2S 2023-11-20
- L-LMW-3S 2023-11-20
- L-LMW-4S 2023-11-17
- L-LMW-5S 2023-11-16
- L-LMW-6S 2023-11-15
- L-LMW-7S 2023-11-15
- L-LMW-8S 2023-11-16

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

CLIENT/PROJECT				TITLE		
AMEREN MISSOURI **LABADIE ENERGY CENTER**				**LCPB Piper Diagram for November 2023**		
DRAWN GTM	CHECKED JTA	REVIEWED MNH	DATE 2024-07-09	Rev No. NA	JOB NO. 23007-24	FIGURE **1**

Appendix A
FALCON Analysis Calculation Package

Technical Memorandum

July 23, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:**	23007-24
From:	Mark Haddock, P.E., R.G., Jeff Ingram, R.G.	**Email:**	jeff.ingram@rocksmithgeo.com
RE:	**Appendix A – LCPB FALCON Analysis Calculation Package**		

1.0 OBJECTIVE

The objective of this Technical Memorandum calculation package is to determine if there is a correlation between the ion ratio fingerprints in the LCPA pore-water, LCPB pore-water or background groundwater with the compliance monitoring well samples in the alluvial aquifer at the Labadie Energy Center (LEC).

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method compiles ion ratios for multiple constituents in order to develop a distinctive chemical fingerprint for each possible contaminant source and un-impacted background groundwater. These fingerprints were correlated to well sample data downgradient of the sources and are used to characterize the source of the contaminant plume. For this calculation, background groundwater quality is derived from samples collected in background wells located approximately 2 to 2.5 miles west of the LCPB. Source data are from pore-water collected from piezometers within the LCPA and LCPB. Fingerprints from these three sources (background groundwater, LCPA pore-water and LCPB pore-water) were compared to data from alluvial aquifer monitoring well sampling locations at the LEC. Data from the LCPA and LCPB pore-water are from the November 2017 ASD for the LCPB, which is available in the 2019 Annual Report for the LCPB. Data from the background and compliance monitoring wells are from the November 2023 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis was to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each water type. Constituents selected included major cation and anion constituents that represent groundwater chemistry and key indicators of CCR impacts. Values of the three different sources were compared to see which constituents fit the criteria. A summary table of the values used for the three sources is provided in **Table 1**. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Boron
- Total Calcium
- Total Chloride
- Total Fluoride
- Total Iron
- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized and a graphical presentation of the fingerprints was produced. The data used, along with the normalization percentages, are provided in **Table 1** for the three different sources (background groundwater, LCPA pore-water, and LCPB pore-water) as well as for each monitoring well evaluated. Correlations were then completed between the different sources to determine each source's reproducibility. Tables displaying the FALCON correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

LCPB Pore-water Correlations			
Well ID	*L-LCPB-1*	*L-LCPB-2*	*L-LCPB-3*
L-LCPB-1			
L-LCPB-2	99.6%		
L-LCPB-3	98.9%	99.5%	
Average Fingerprint Reproducibility			99.4%

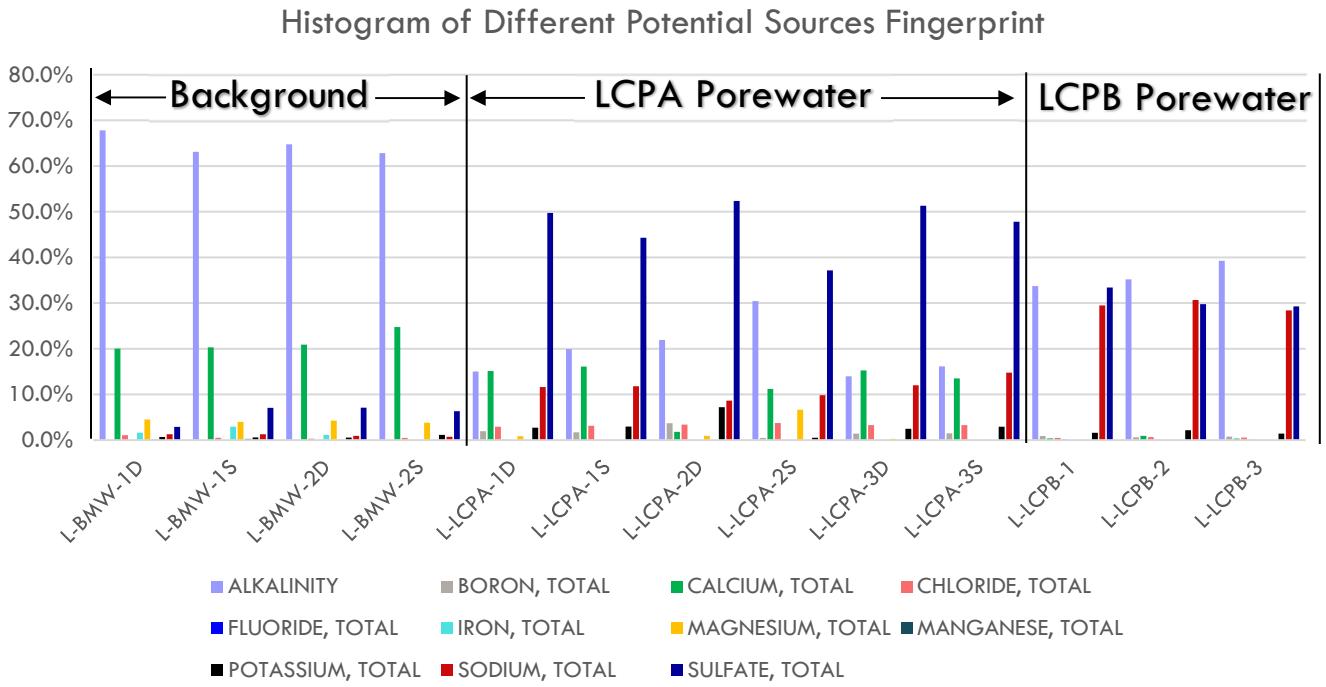
Table 3- LCPB Pore-water Correlations

LCPB Pore-water Correlations			
	L-LCPB-1	*L-LCPB-2*	*L-LCPB-3*
L-LCPB-1			
L-LCPB-2	99.6%		
L-LCPB-3	98.9%	99.5%	
Average Fingerprint Reproducibility			99.4%

Table 4 – LCPA Pore-water Correlations

Well ID	*L-LCPA-1D*	*L-LCPA-1S*	*L-LCPA-2D*	*L-LCPA-2S*	*L-LCPA-3D*	*L-LCPA-3S*
L-LCPA-1D						
L-LCPA-1S	98.9%					
L-LCPA-2D	94.5%	93.8%				
L-LCPA-2S	88.9%	93.3%	90.0%			
L-LCPA-3D	99.9%	98.5%	94.1%	87.6%		
L-LCPA-3S	99.6%	99.0%	94.8%	89.8%	99.5%	
Average Fingerprint Reproducibility						94.8%
Average Fingerprint Reproducibility with LCPA-1S, LCPA-1D, LCPA-2D, LCPA-3S and LCPA-3D						97.2%

Additionally, **Figure 1** below displays a histogram of the different source water normalizations.



As described in the ASD report for the November 2017 monitoring results (provided in the 2018 Annual Report for the LCPB), samples collected within the LCPA unit displayed less correlation due to the spatial variation of sample locations and differing CCR materials present in sample intervals. The LCPA has been in operation since the 1970s and there have been many changes to CCR received by the LCPA during this time. These include changes in types of coal used onsite, types of CCR placed in the facility (pre-LCPB construction vs. post-LCPB construction), and types of CCR placed within the unit. While not as evident using the constituents available for this evaluation, no Appendix IV constituents were tested because LCPB is under detection monitoring. When compared with the 2018 evaluation, LCPA-2S still appears to have a weaker correlation (<90% in this case) and was evaluated separately. Separating the LCPA into two potential sources (one for LCPA-1S, -1D, -2D, -3S, -3D and one for LCPA-2S) more accurately reflects the conditions within the LCPA due to its spatial variation of constituent concentrations.

5.0 CORRELATING DOWNGRADIENT GROUNDWATER SAMPLES WITH SOURCES

A correlation between the average groundwater concentration and the different source waters was completed to demonstrate which source better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results demonstrate that groundwater in the alluvial aquifer correlates better with the LCPA pore-water or background groundwater than it does with the LCPB pore-water. In no case did a downgradient groundwater sample correlate better with the LCPB pore-water than with the LCPA pore-water or background groundwater.

Table 5 – Summary of November 2023 USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Groundwater	LCPB Average	LCPA Average (LCPA-1S/D, LCPA-2D & LCPA-3S/D)	LCPA-2S	
L-BMW-1D	100%	55%	29%	58%	Background
L-BMW-1S	100%	58%	35%	63%	Background
L-BMW-2D	100%	58%	35%	63%	Background
L-BMW-2S	100%	55%	34%	62%	Background
L-AM-1D	39%	80%	99%	95%	LCPA-Average
L-AM-1S	98%	55%	26%	55%	Background
L-AMW-8	27%	75%	99%	91%	LCPA-Average
L-LMW-1S	100%	60%	38%	65%	Background
L-LMW-2S	7%	60%	95%	80%	LCPA-Average
L-LMW-3S	96%	77%	52%	76%	Background
L-LMW-4S	98%	67%	47%	72%	Background
L-LMW-5S	100%	53%	28%	56%	Background
L-LMW-6S	100%	57%	33%	61%	Background
L-LMW-7S	96%	71%	59%	82%	Background
L-LMW-8S	99%	68%	46%	72%	Background
L-MW-24	100%	56%	33%	61%	Background
L-MW-26	100%	56%	33%	62%	Background
L-MW-33(D)	18%	67%	97%	87%	LCPA-Average
L-MW-34(D)	40%	76%	98%	96%	LCPA-Average
L-MW-35(D)	86%	84%	76%	93%	LCPA-2S
L-S-1	100%	54%	28%	57%	Background
L-TMW-1	100%	58%	36%	64%	Background
L-TMW-2	98%	66%	52%	76%	Background
L-TMW-3	100%	58%	35%	63%	Background
L-TP-1D	100%	55%	28%	57%	Background
L-TP-2D	87%	83%	74%	92%	LCPA-2S
L-TP-2M	78%	84%	84%	96%	LCPA-2S
L-TP-3D	18%	71%	98%	88%	LCPA-Average
L-TP-3M	84%	83%	78%	94%	LCPA-2S
L-TP-4D	89%	75%	71%	90%	LCPA-2S
L-UMW-1D	100%	56%	28%	57%	Background
L-UMW-2D	96%	74%	56%	79%	Background
L-UMW-3D	12%	64%	96%	83%	LCPA-Average
L-UMW-4D	14%	71%	97%	85%	LCPA-Average
L-UMW-5D	23%	71%	98%	88%	LCPA-Average
L-UMW-6D	3%	61%	94%	79%	LCPA-Average
L-UMW-7D	100%	55%	27%	56%	Background
L-UMW-8D	99%	60%	30%	59%	Background
L-UMW-9D	99%	53%	24%	54%	Background

Notes

1) Values display percent correlation between data collected in November 2023 for each monitoring well and the LPCA, LCPB or background fingerprints.
2) The higher values are shaded darker and indicate better correlation.
3) More information on the calculation of these numbers is provided in Table 1.

Tables

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-BMW-1D	L-BMW-1S	L-BMW-2D	L-BMW-2S	L-AM-1D	L-AM-1S	L-AMW-8
ALKALINITY	mg/L	393	646	418	381	162	635	95.6
BORON, TOTAL	mg/L	0.0725	0.113	0.0636	0.0508	8.41	0.327	6.67
CALCIUM, TOTAL	mg/L	116	208	135	150	106	188	68.2
CHLORIDE, TOTAL	mg/L	6.20	5.30	2.00	2.80	35.8	86	21.1
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	9.52	29.9	7.25	0.0046	4.82	11.8	2.64
MAGNESIUM, TOTAL	mg/L	26.2	40.6	27.5	23.1	13.1	37.8	11
MANGANESE, TOTAL	mg/L	0.56	2.72	0.299	0.00970	0.281	1.7	0.327
POTASSIUM, TOTAL	mg/L	4.02	5.77	3.48	6.92	9.27	7.38	6.48
SODIUM, TOTAL	mg/L	7.38	13.1	6.11	4.29	107	50.3	76.5
SULFATE, TOTAL	mg/L	16.7	72.4	45.9	38.3	329	5.00	273
Sum		579.7	1024.0	645.7	606.5	775.7	1023.4	561.6

Analyte	L-BMW-1D	L-BMW-1S	L-BMW-2D	L-BMW-2S	L-AM-1D	L-AM-1S	L-AMW-8
ALKALINITY	68%	63%	65%	63%	21%	62%	17%
BORON, TOTAL	0.013%	0.011%	0.0099%	0.0084%	1.1%	0.032%	1.2%
CALCIUM, TOTAL	20%	20%	21%	25%	14%	18%	12%
CHLORIDE, TOTAL	1.1%	0.52%	0.31%	0.46%	4.6%	8.4%	3.8%
FLUORIDE, TOTAL	0.01%	0.0059%	0.0093%	0.0099%	0.0077%	0.0059%	0.011%
IRON, TOTAL	1.6%	2.9%	1.1%	0.00075%	0.62%	1.2%	0.47%
MAGNESIUM, TOTAL	4.5%	4%	4.3%	3.8%	1.7%	3.7%	2%
MANGANESE, TOTAL	0.096%	0.27%	0.046%	0.0016%	0.036%	0.17%	0.058%
POTASSIUM, TOTAL	0.69%	0.56%	0.54%	1.1%	1.2%	0.72%	1.2%
SODIUM, TOTAL	1.3%	1.3%	0.95%	0.71%	14%	4.9%	14%
SULFATE, TOTAL	2.9%	7.1%	7.1%	6.3%	42%	0.49%	49%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023 samples collected for the CCR Rule.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LMW-1S	L-LMW-2S	L-LMW-3S	L-LMW-4S	L-LMW-5S	L-LMW-6S	L-LMW-7S
ALKALINITY	mg/L	298	39.2	315	494	447	417	481
BORON, TOTAL	mg/L	1.06	3.45	4.22	3.47	0.055	0.806	6.58
CALCIUM, TOTAL	mg/L	103	84.3	109	178	154	131	184
CHLORIDE, TOTAL	mg/L	4.00	15	21.1	60.7	3.90	3.20	13.5
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.348	0.017	12.5	7.67	0.0205	6.38	4.48
MAGNESIUM, TOTAL	mg/L	17.4	0.0766	15.8	30.2	14.6	23.0	38.8
MANGANESE, TOTAL	mg/L	0.504	0.0019	1.3	1.84	0.0086	1.11	1.49
POTASSIUM, TOTAL	mg/L	3.81	10.3	6.58	7.08	3.59	5.18	7.95
SODIUM, TOTAL	mg/L	7.33	72.7	83	61.4	7.5	10.6	39.6
SULFATE, TOTAL	mg/L	41.2	337	92.3	116	7.9	31.6	192
Sum		476.7	562.1	660.9	960.4	638.6	629.9	969.5

Analyte	L-LMW-1S	L-LMW-2S	L-LMW-3S	L-LMW-4S	L-LMW-5S	L-LMW-6S	L-LMW-7S
ALKALINITY	63%	7%	48%	51%	70%	66%	50%
BORON, TOTAL	0.22%	0.61%	0.64%	0.36%	0.0086%	0.13%	0.68%
CALCIUM, TOTAL	22%	15%	16%	19%	24%	21%	19%
CHLORIDE, TOTAL	0.84%	2.7%	3.2%	6.3%	0.61%	0.51%	1.4%
FLUORIDE, TOTAL	0.013%	0.011%	0.0091%	0.0062%	0.0094%	0.0095%	0.0062%
IRON, TOTAL	0.073%	0.003%	1.9%	0.8%	0.0032%	1%	0.46%
MAGNESIUM, TOTAL	3.7%	0.014%	2.4%	3.1%	2.3%	3.7%	4%
MANGANESE, TOTAL	0.11%	0.00034%	0.2%	0.19%	0.0013%	0.18%	0.15%
POTASSIUM, TOTAL	0.8%	1.8%	1%	0.74%	0.56%	0.82%	0.82%
SODIUM, TOTAL	1.5%	13%	13%	6.4%	1.2%	1.7%	4.1%
SULFATE, TOTAL	8.6%	60%	14%	12%	1.2%	5%	20%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023 samples collected for the CCR Rule.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

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Checked By: JTA
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Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LMW-8S	L-MW-24	L-MW-26	L-MW-33(D)	L-MW-34(D)	L-MW-35(D)	L-S-1
ALKALINITY	mg/L	365	380	424	114	186	343	473
BORON, TOTAL	mg/L	1.55	0.0719	0.0699	9.34	9.76	7.64	0.0836
CALCIUM, TOTAL	mg/L	118	128	147	117	121	120	143
CHLORIDE, TOTAL	mg/L	3.90	5.30	10	21.3	19.6	13	1.60
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.454	0.0662	0.00455	5.71	7.02	5.55	0.0131
MAGNESIUM, TOTAL	mg/L	18.8	24.1	27.5	23.8	29.2	27.3	20.9
MANGANESE, TOTAL	mg/L	0.0302	0.00620	0.241	0.309	0.329	0.422	0.179
POTASSIUM, TOTAL	mg/L	5.38	5.22	5.17	7.65	7.45	5.33	31.2
SODIUM, TOTAL	mg/L	38.3	7.28	5.98	99.1	87.6	75.6	2.96
SULFATE, TOTAL	mg/L	79.2	29.9	37.2	477	394	219	15.5
Sum		630.7	580.0	657.2	875.3	862.0	816.9	688.5

Analyte	L-LMW-8S	L-MW-24	L-MW-26	L-MW-33(D)	L-MW-34(D)	L-MW-35(D)	L-S-1
ALKALINITY	58%	66%	65%	13%	22%	42%	69%
BORON, TOTAL	0.25%	0.012%	0.011%	1.1%	1.1%	0.94%	0.012%
CALCIUM, TOTAL	19%	22%	22%	13%	14%	15%	21%
CHLORIDE, TOTAL	0.62%	0.91%	1.5%	2.4%	2.3%	1.6%	0.23%
FLUORIDE, TOTAL	0.0095%	0.01%	0.0091%	0.0069%	0.007%	0.0073%	0.0087%
IRON, TOTAL	0.072%	0.011%	0.00069%	0.65%	0.81%	0.68%	0.0019%
MAGNESIUM, TOTAL	3%	4.2%	4.2%	2.7%	3.4%	3.3%	3%
MANGANESE, TOTAL	0.0048%	0.0011%	0.037%	0.035%	0.038%	0.052%	0.026%
POTASSIUM, TOTAL	0.85%	0.9%	0.79%	0.87%	0.86%	0.65%	4.5%
SODIUM, TOTAL	6.1%	1.3%	0.91%	11%	10%	9.3%	0.43%
SULFATE, TOTAL	13%	5.2%	5.7%	54%	46%	27%	2.3%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023 samples collected for the CCR Rule.
2) mg/L - milligrams per liter.
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Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-TMW-1	L-TMW-2	L-TMW-3	L-TP-1D	L-TP-2D	L-TP-2M	L-TP-3D
ALKALINITY	mg/L	496	766	448	505	271	286	119
BORON, TOTAL	mg/L	0.108	0.156	0.114	0.0658	1.32	1.19	9.62
CALCIUM, TOTAL	mg/L	160	254	145	141	101	128	94.6
CHLORIDE, TOTAL	mg/L	25.60	19.90	3.30	4.70	22.6	28.3	23.5
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	0.125	0.0766	1.22	8.56	3.75	3.75	4.08
MAGNESIUM, TOTAL	mg/L	36.3	73.7	30.4	35.7	18.1	19	20.7
MANGANESE, TOTAL	mg/L	0.295	2.33	1.19	0.264	0.358	0.57	0.173
POTASSIUM, TOTAL	mg/L	4.45	8.01	5.98	4.3	5.95	7.51	6.71
SODIUM, TOTAL	mg/L	9.96	18.5	6.40	12.7	64	79.2	122
SULFATE, TOTAL	mg/L	55.4	231	44.8	13.3	165	241	457
Sum		788.3	1373.7	686.5	725.6	653.1	794.6	857.4

Analyte	L-TMW-1	L-TMW-2	L-TMW-3	L-TP-1D	L-TP-2D	L-TP-2M	L-TP-3D
ALKALINITY	63%	56%	65%	70%	41%	36%	14%
BORON, TOTAL	0.014%	0.011%	0.017%	0.0091%	0.2%	0.15%	1.1%
CALCIUM, TOTAL	20%	18%	21%	19%	15%	16%	11%
CHLORIDE, TOTAL	3.2%	1.4%	0.48%	0.65%	3.5%	3.6%	2.7%
FLUORIDE, TOTAL	0.0076%	0.0044%	0.0087%	0.0083%	0.0092%	0.0076%	0.007%
IRON, TOTAL	0.016%	0.0056%	0.18%	1.2%	0.57%	0.47%	0.48%
MAGNESIUM, TOTAL	4.6%	5.4%	4.4%	4.9%	2.8%	2.4%	2.4%
MANGANESE, TOTAL	0.037%	0.17%	0.17%	0.036%	0.055%	0.072%	0.02%
POTASSIUM, TOTAL	0.56%	0.58%	0.87%	0.59%	0.91%	0.95%	0.78%
SODIUM, TOTAL	1.3%	1.3%	0.93%	1.8%	9.8%	10%	14%
SULFATE, TOTAL	7%	17%	6.5%	1.8%	25%	30%	53%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023 samples collected for the CCR Rule.
2) mg/L - milligrams per liter.
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Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-TP-3M	L-TP-4D	L-UMW-1D	L-UMW-2D	L-UMW-3D	L-UMW-4D	L-UMW-5D
ALKALINITY	mg/L	271	310	555	383	49.2	64.9	91
BORON, TOTAL	mg/L	5.04	6.51	0.485	1.08	10.8	6.09	11.1
CALCIUM, TOTAL	mg/L	108	125	156	128	75.5	62.8	91.7
CHLORIDE, TOTAL	mg/L	19.5	15	10.50	27.2	23	22.3	20.8
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	7.97	5.43	20.9	4.05	0.11	0.265	0.0137
MAGNESIUM, TOTAL	mg/L	22.9	32.9	37.5	26.1	3.51	7	0.0101
MANGANESE, TOTAL	mg/L	1.27	0.347	0.486	0.471	0.1	0.326	0.0102
POTASSIUM, TOTAL	mg/L	5.31	4.81	6.68	7.76	10.1	8.09	14.2
SODIUM, TOTAL	mg/L	62.4	28.5	21.6	59.2	68.6	96.6	84.4
SULFATE, TOTAL	mg/L	189	183	17.9	130	263	293	303
Sum		692.5	711.6	827.1	766.9	504.0	561.4	616.3

Analyte	L-TP-3M	L-TP-4D	L-UMW-1D	L-UMW-2D	L-UMW-3D	L-UMW-4D	L-UMW-5D
ALKALINITY	39%	44%	67%	50%	9.8%	12%	15%
BORON, TOTAL	0.73%	0.91%	0.059%	0.14%	2.1%	1.1%	1.8%
CALCIUM, TOTAL	16%	18%	19%	17%	15%	11%	15%
CHLORIDE, TOTAL	2.8%	2.1%	1.3%	3.5%	4.6%	4%	3.4%
FLUORIDE, TOTAL	0.0087%	0.0084%	0.0073%	0.0078%	0.012%	0.011%	0.0097%
IRON, TOTAL	1.2%	0.76%	2.5%	0.53%	0.022%	0.047%	0.0022%
MAGNESIUM, TOTAL	3.3%	4.6%	4.5%	3.4%	0.7%	1.2%	0.0016%
MANGANESE, TOTAL	0.18%	0.049%	0.059%	0.061%	0.02%	0.058%	0.0017%
POTASSIUM, TOTAL	0.77%	0.68%	0.81%	1%	2%	1.4%	2.3%
SODIUM, TOTAL	9%	4%	2.6%	7.7%	14%	17%	14%
SULFATE, TOTAL	27%	26%	2.2%	17%	52%	52%	49%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023 samples collected for the CCR Rule.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-UMW-6D	L-UMW-7D	L-UMW-8D	L-UMW-9D	L-LCPA-1D	L-LCPA-1S	L-LCPA-2D
ALKALINITY	mg/L	59.4	466	150	410	77.6	120	128
BORON, TOTAL	mg/L	9.65	0.803	0.619	0.0865	10.0	10.3	21.7
CALCIUM, TOTAL	mg/L	125	140	36.8	115	78.2	97.1	10.6
CHLORIDE, TOTAL	mg/L	19.6	6.40	2.50	25.9	15.2	18.9	19.8
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.20	0.06	0.20	0.088	0.14
IRON, TOTAL	mg/L	0.437	14.1	5.49	23.5	0.178	0.138	0.0869
MAGNESIUM, TOTAL	mg/L	3.26	23.7	9.15	30.8	4.47	0.184	5.43
MANGANESE, TOTAL	mg/L	0.34	1.69	0.222	0.404	0.00410	0.00320	0.00250
POTASSIUM, TOTAL	mg/L	17.3	4.38	2.83	4.09	14.0	17.8	42.1
SODIUM, TOTAL	mg/L	148	14.9	10.0	14.4	60.0	71.1	50.5
SULFATE, TOTAL	mg/L	648	6.4	8.4	0.275	257	267	306
Sum		1031.0	678.4	226.2	624.5	516.9	602.6	584.4

Analyte	L-UMW-6D	L-UMW-7D	L-UMW-8D	L-UMW-9D	L-LCPA-1D	L-LCPA-1S	L-LCPA-2D
ALKALINITY	5.8%	69%	66%	66%	15%	20%	22%
BORON, TOTAL	0.94%	0.12%	0.27%	0.014%	1.9%	1.7%	3.7%
CALCIUM, TOTAL	12%	21%	16%	18%	15%	16%	1.8%
CHLORIDE, TOTAL	1.9%	0.94%	1.1%	4.1%	2.9%	3.1%	3.4%
FLUORIDE, TOTAL	0.0058%	0.0088%	0.088%	0.0096%	0.039%	0.015%	0.024%
IRON, TOTAL	0.042%	2.1%	2.4%	3.8%	0.034%	0.023%	0.015%
MAGNESIUM, TOTAL	0.32%	3.5%	4%	4.9%	0.86%	0.031%	0.93%
MANGANESE, TOTAL	0.033%	0.25%	0.098%	0.065%	0.00079%	0.00053%	0.00043%
POTASSIUM, TOTAL	1.7%	0.65%	1.3%	0.65%	2.7%	3%	7.2%
SODIUM, TOTAL	14%	2.2%	4.4%	2.3%	12%	12%	8.6%
SULFATE, TOTAL	63%	0.94%	3.7%	0.044%	50%	44%	52%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023; Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.

2) mg/L - milligrams per liter.

3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTA
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LCPA-2S	L-LCPA-3D	L-LCPA-3S	L-LCPB-1	L-LCPB-2	L-LCPB-3
ALKALINITY	mg/L	208	80.2	91.8	1070	861	1340
BORON, TOTAL	mg/L	3.36	8.10	8.44	28.2	14.8	25.7
CALCIUM, TOTAL	mg/L	76.5	87.7	76.9	11.4	22.6	11.4
CHLORIDE, TOTAL	mg/L	25.5	18.9	18.6	15.6	16.2	18.4
FLUORIDE, TOTAL	mg/L	0.170	0.160	0.160	2.40	1.00	1.90
IRON, TOTAL	mg/L	0.0279	0.122	0.112	0.0273	0.129	0.384
MAGNESIUM, TOTAL	mg/L	45.5	1.54	0.445	0.0844	0.0874	0.386
MANGANESE, TOTAL	mg/L	0.0392	0.00230	0.00250	0.00250	0.00250	0.00230
POTASSIUM, TOTAL	mg/L	3.54	14.2	16.6	51.0	52.6	48.2
SODIUM, TOTAL	mg/L	67.2	69.0	84.0	935	750	969
SULFATE, TOTAL	mg/L	254	295	272	1060	728	999
Sum		683.8	574.9	569.1	3173.7	2446.4	3414.4

Analyte	L-LCPA-2S	L-LCPA-3D	L-LCPA-3S	L-LCPB-1	L-LCPB-2	L-LCPB-3
ALKALINITY	30%	14%	16%	34%	35%	39%
BORON, TOTAL	0.49%	1.4%	1.5%	0.89%	0.6%	0.75%
CALCIUM, TOTAL	11%	15%	14%	0.36%	0.92%	0.33%
CHLORIDE, TOTAL	3.7%	3.3%	3.3%	0.49%	0.66%	0.54%
FLUORIDE, TOTAL	0.025%	0.028%	0.028%	0.076%	0.041%	0.056%
IRON, TOTAL	0.0041%	0.021%	0.02%	0.00086%	0.0053%	0.011%
MAGNESIUM, TOTAL	6.7%	0.27%	0.078%	0.0027%	0.0036%	0.011%
MANGANESE, TOTAL	0.0057%	0.0004%	0.00044%	0.000079%	0.0001%	0.000067%
POTASSIUM, TOTAL	0.52%	2.5%	2.9%	1.6%	2.2%	1.4%
SODIUM, TOTAL	9.8%	12%	15%	29%	31%	28%
SULFATE, TOTAL	37%	51%	48%	33%	30%	29%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells from November 2023; Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.

2) mg/L - milligrams per liter.

3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Appendix C

Alternative Source Demonstration – May 2024 Sampling Event

Technical Memoranum

December 23, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:**	23007-24
From:	Mark Haddock, P.E., R.G., Jeff Ingram, R.G., Grant Morey	**Email:**	jeff.ingram@rocksmithgeo.com
RE :	**LCPB – Alternative Source Demonstration – May 2024 Sampling Event**		

1.0 INTRODUCTION

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

2.0 BACKGROUND

The first Detection Monitoring sampling event at the LEC's LCPB CCR Unit in Franklin County, Missouri was completed in November 2017. 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, and it was determined that the SSIs in the CCR Rule groundwater monitoring wells at the LCPB were not caused by impacts from the LCPB. The ASD report for the November 2017 monitoring results and subsequent ASDs indicated that the SSIs observed in the LCPB wells were caused by the adjacent LCPA surface impoundment. This conclusion was supported by lines of evidence (LOEs) as follows.

- Geochemical Signatures
- USEPA FALCON Analysis
- Groundwater Flow Directions
- Methods Used to Construct the SCPB

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

ASD reports are included in LCPB Annual Groundwater Monitoring and Corrective Action Reports.

3.0 MAY 2024 SAMPLING EVENT

A summary of the May 2024 sampling results is provided in **Table 1**. As discussed in **Section 2.0**, there are several LOEs presented in the previous ASDs that demonstrate that impacts around the LCPB are caused by the LCPA and not the LCPB. Although both CCR units are now capped and closed with an engineered geomembrane cover system, the same LOEs are still present at the site, and the LCPA is the source of impacts around the LCPB in the May 2024 sampling event. The following summarizes the LOEs using current monitoring data through the May 2024 sampling event.

- **Geochemical Signatures** -LCPA porewater has a distinctly different geochemical signature than the porewater from the LCPB as reflected on the piper diagram provided in **Figure 1**. Groundwater samples from monitoring wells with SSIs are plotted on the piper diagrams between the LCPA porewater zone and the background groundwater zone, indicating that water chemistry in the monitoring well is a mixture of unaffected groundwater and groundwater impacted by the LCPA.

- **USEPA FALCON Analysis** – The USEPA FALCON method was used to compare constituent fingerprints from the downgradient monitoring wells with those of background groundwater, LCPB porewater, and LCPA porewater. A Technical Memorandum summarizing the calculations and results is provided in **Appendix A**. An updated calculation using data from the May 2024 sampling event was completed and a summary of the results is provided in Table 5 of **Appendix A**. The results indicate that there is strong correlation between the downgradient monitoring wells and both LCPA porewater and background groundwater, while there is less correlation between downgradient monitoring well data and LCPB porewater. These same correlations were found at depth within the alluvial aquifer.

- **Groundwater Flow Direction** - Potentiometric surface mapping from 2018 through 2024 continues to show that, while groundwater flow conditions are variable, net groundwater flow is toward the north or northeast, flowing from the bluffs toward the Missouri River. This supports the conclusion that the unlined LCPA is the source of impacts at the LCPB downgradient monitoring wells because the impacted monitoring wells around the LCPB are generally located downgradient of the LCPA.

- **LCPB Construction** - The LCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a minimum bottom elevation of approximately 460 feet above mean sea level (FT MSL). The low permeability HDPE liner system in the LCPB is a barrier to the migration of CCR-influenced water and provides containment for CCR. The LCPA is unlined, was built in the early 1970s and has a bottom elevation estimated at approximately 410 FT MSL, which is much deeper than the LCPB. In addition to the distinct porewater fingerprint for LCPA relative to LCPB, there are elevated concentrations of CCR indicators in the intermediate and deep zones of groundwater in the alluvial aquifer surrounding the LCPA, as shown in the LCPA Annual Reports. Around the LCPA, impacts are present in the shallow, intermediate (middle), and deep alluvial zones, and are not isolated to the shallow zone, where LCPB impacts would most readily occur due to the shallow depth of the LCPB. The impacts to the intermediate and deep alluvial zones are most likely from the LCPA, where the CCR materials extend into deeper groundwater zones in the aquifer.

In summary, groundwater chemistry, porewater chemistry fingerprints, cell construction, and hydrogeological evidence demonstrate that SSIs reported for the May 2024 Sampling Event for the LCPB CCR Unit were not caused by impacts from the LCPB surface impoundment. The LCPA surface impoundment, located immediately adjacent to the LCPB, is the source of the SSIs for groundwater in the LCPB monitoring well network.

4.0 CERTIFICATION STATEMENT

This *LCPB – Alternative Source Demonstration – May 2024 Sampling Event has* been prepared to comply with the USEPA CCR rule under the direction of a Licensed Professional Engineer with Rocksmith Geoengineering, LLC.

I hereby certify that this *LCPB – Alternative Source Demonstration – May 2024 Sampling Event* located at 226 Labadie Power Plant Road, Labadie, Missouri 63055 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

Rocksmith Geoengineering, LLC

_____

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

Attachments: Table 1 – May 2024 Detection Monitoring Results
Figure 1 – LCPB Piper Diagram for May 2024
Appendix A – FALCON Analysis Calculation Package

Tables

Table 1
May 2024 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

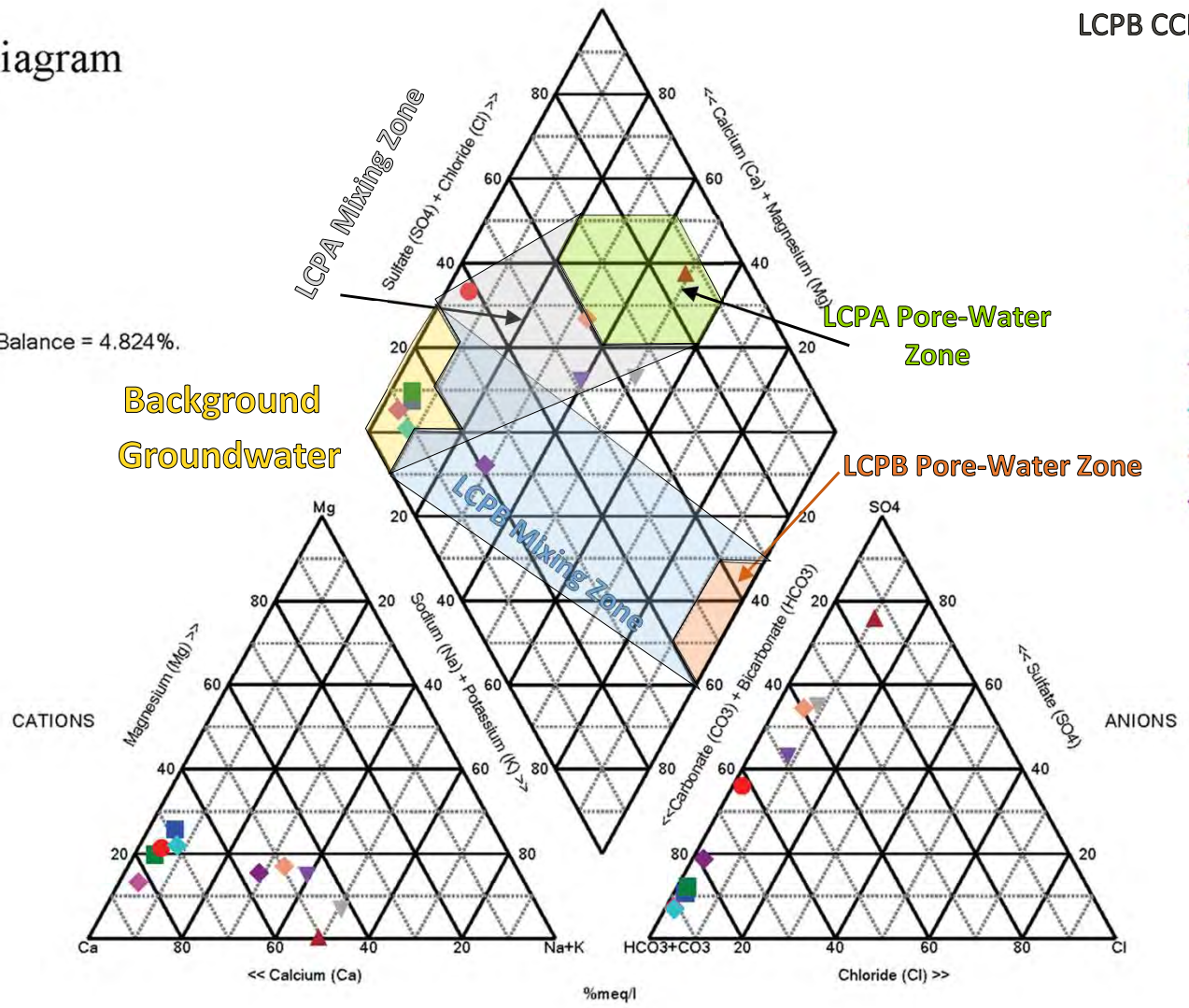
			BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	PREDICTION LIMITS	BMW-1S	BMW-2S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S
May 2024 Detection Monitoring Event												
DATE	NA	NA	5/23/2024	5/23/2024	5/21/2024	5/15/2024	5/17/2024	5/17/2024	5/20/2024	5/20/2024	5/20/2024	5/20/2024
pH	SU	6.416-7.307	6.72	6.98	7.03	9.55	7.27	7.09	6.99	7.12	7.13	7.29
BORON, TOTAL	µg/L	141.2	92.3 J	53.5 J	1,860	4,070	3,920	7,850	61.6 J	1,170	8,000	1,510
CALCIUM, TOTAL	µg/L	221,000	193,000	128,000	163,000	64,200	73,700	96,100	165,000	105,000	95,400	51,800
CHLORIDE, TOTAL	mg/L	7.564	6.9	2.9	4.7	19.8	22.2	25.8	2.7	2.8	16.4	1.8
FLUORIDE, TOTAL	mg/L	0.2154	ND	ND	ND	ND	0.35	ND	ND	ND	ND	ND
SULFATE, TOTAL	mg/L	75.18	65.6	41.9	180	206	210 J	197	29.0	20.1	243	39.8
TOTAL DISSOLVED SOLIDS	mg/L	828	675	502	637	409	552 J	555	491	378	602	260
July 2024 Verification Sampling Event												
DATE	NA	NA			7/25/2024		7/25/2024					
pH	SU	6.416-7.307										
BORON, TOTAL	µg/L	141.2										
CALCIUM, TOTAL	µg/L	221,000										
CHLORIDE, TOTAL	mg/L	7.564										
FLUORIDE, TOTAL	mg/L	0.2154					0.28					
SULFATE, TOTAL	mg/L	75.18			92.3 J							
TOTAL DISSOLVED SOLIDS	mg/L	828										

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

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

Figures

Piper Diagram



Cation-Anion Balance = 4.824%.

LCPB CCR Rule Monitoring Wells

- L-BMW-1S* 2024-05-23
- L-BMW-2S* 2024-05-23
- L-LMW-1S 2024-05-21
- L-LMW-2S 2024-05-15
- L-LMW-3S 2024-05-17
- L-LMW-4S 2024-05-17
- L-LMW-5S 2024-05-20
- L-LMW-6S 2024-05-20
- L-LMW-7S 2024-05-20
- L-LMW-8S 2024-05-20

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

CLIENT/PROJECT				TITLE		
AMEREN MISSOURI **LABADIE ENERGY CENTER**				**LCPB Piper Diagram for May 2024**		
DRAWN GTM	CHECKED JTR	REVIEWED MNH	DATE 2024-12-04	Rev No. NA	JOB NO. 23007-24	FIGURE **1**

Appendix A
FALCON Analysis Calculation Package

Technical Memorandum

December 23, 2024

To:	Ameren Missouri 1901 Chouteau Ave, St. Louis, MO 63103	**Project Number:**	23007-24
From:	Mark Haddock, P.E., R.G., Jeff Ingram, R.G., Grant Morey	**Email:**	jeff.ingram@rocksmithgeo.com
RE:	**Appendix A – LCPB FALCON Analysis Calculation Package**		

1.0 OBJECTIVE

The objective of this Technical Memorandum calculation package is to determine if there is a correlation between the ion ratio fingerprints in the LCPA porewater, LCPB porewater or background groundwater with the compliance monitoring well samples in the alluvial aquifer at the Labadie Energy Center (LEC).

2.0 FINGERPRINT ANALYSIS OF LEACHATE CONTAMINANTS (FALCON) METHOD

The Fingerprint Analysis of Leachate Contaminants (FALCON) method was developed in 2004 by the United States Environmental Protection Agency (USEPA) as a tool to identify the source of impacts within groundwater. The FALCON method was used to develop distinctive chemical fingerprints for each possible contaminant source and background groundwater by comparing ion ratios for multiple constituents. These fingerprints were correlated to monitoring well sample data downgradient of the sources and used to characterize the source of the contaminant plume. For this calculation, background groundwater quality was derived from samples collected from background wells located approximately 2 to 2.5 miles west of the LCPB. Source area porewater data was collected from piezometers within the LCPA and LCPB. Fingerprints from background groundwater and the two sources (LCPA porewater and LCPB porewater) were compared to data from alluvial aquifer monitoring well sampling locations at the LEC. Data from the LCPA and LCPB porewater were previously reported in the November 2017 ASD for the LCPB, which is available in the 2019 Annual Report for the LCPB. Data from the background and compliance monitoring wells were collected during the May 2024 sampling event.

3.0 SELECTION OF CONSTITUENTS TO USE

The first step in completing the FALCON analysis was to select a subset of constituents that are representative of the potential source areas. When selecting these constituents, it is important to include constituents that are mobile in the hydrogeological environment and that can uniquely characterize each source area water. Constituents selected included major cation and anion constituents that represent groundwater chemistry and key indicators of coal combustion residual (CCR) impacts. Concentrations of these constituents for the background groundwater and the two sources were compared to see which constituents fit the criteria. The following constituents were selected to complete the FALCON analysis:

- Alkalinity
- Total Boron
- Total Calcium
- Total Chloride
- Total Fluoride
- Total Iron
- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- Total Sulfate

. A summary table of the values used for the three sources is provided in **Table 1**, attached.

4.0 DATA TABULATION AND NORMALIZATION

Once the constituents were selected, the data were tabulated, normalized, and a graphical presentation of the fingerprints was produced. The data used, along with the normalization percentages, are provided in **Table 1** for the background groundwater and the two sources (LCPA pore-water and LCPB pore-water) as well as for each monitoring well evaluated. The data was then correlated to determine the reproducibility for each water type. Tables presenting the FALCON correlations are provided below in **Tables 2-4**.

Table 2 – Background Groundwater Correlations

LCPB Pore-water Correlations			
Well ID	*L-LCPB-1*	*L-LCPB-2*	*L-LCPB-3*
L-LCPB-1			
L-LCPB-2	99.6%		
L-LCPB-3	98.9%	99.5%	
Average Fingerprint Reproducibility			99.4%

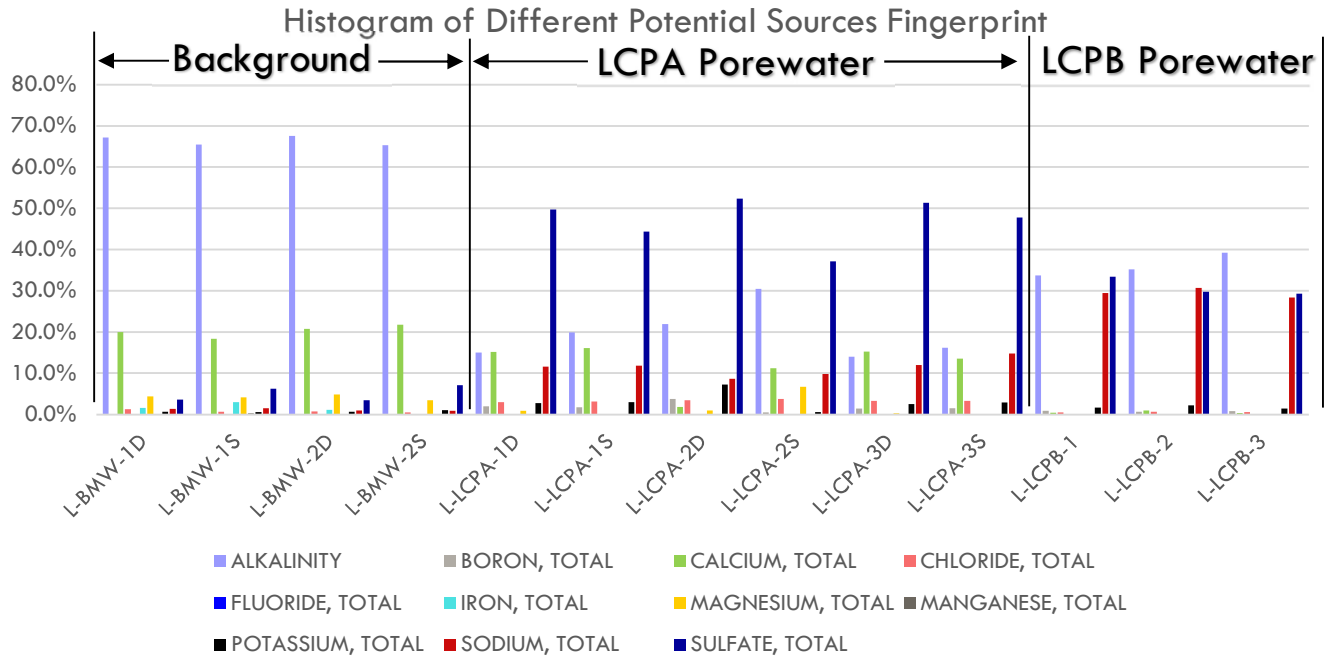
Table 3- LCPB Pore-water Correlations

LCPB Pore-water Correlations			
Well ID	*L-LCPB-1*	*L-LCPB-2*	*L-LCPB-3*
L-LCPB-1			
L-LCPB-2	99.6%		
L-LCPB-3	98.9%	99.5%	
Average Fingerprint Reproducibility			99.4%

Table 4 – LCPA Pore-water Correlations

Well ID	*L-LCPA-1D*	*L-LCPA-1S*	*L-LCPA-2D*	*L-LCPA-2S*	*L-LCPA-3D*	*L-LCPA-3S*
L-LCPA-1D						
L-LCPA-1S	98.9%					
L-LCPA-2D	94.5%	93.8%				
L-LCPA-2S	88.9%	93.3%	90.0%			
L-LCPA-3D	99.9%	98.5%	94.1%	87.6%		
L-LCPA-3S	99.6%	99.0%	94.8%	89.8%	99.5%	
Average Fingerprint Reproducibility						94.8%
Average Fingerprint Reproducibility with LCPA-1S, LCPA-1D, LCPA-2D, LCPA-3S and LCPA-3D						97.2%

Additionally, **Figure 1** below presents a histogram of the different water type normalizations.



As described in the ASD report for the November 2017 monitoring results (provided in the 2018 Annual Report for the LCPB), pore-water samples collected within the LCPA unit displayed less correlation due to the spatial variation of sample locations and differing CCR materials present in sample intervals. The LCPA has been in operation since the 1970s and there have been many changes to CCR received by the LCPA during this time. These include changes in types of coal used onsite, types of CCR placed in the facility (pre-LCPB construction vs. post-LCPB construction), and types of CCR placed within the unit. When compared with the 2018 evaluation, LCPA-2S still appears to have a weaker correlation (<90% in this case) and was evaluated separately. Separating the LCPA into two potential sources (one for LCPA-1S, -1D, -2D, -3S, -3D and one for LCPA-2S) more accurately reflects the conditions within the LCPA due to its spatial variation of constituent concentrations.

5.0 CORRELATING DOWNGRADIENT GROUNDWATER SAMPLES WITH SOURCES

A correlation between the average alluvial aquifer groundwater concentration at each piezometer or monitoring well and the different water type fingerprints was completed to demonstrate which water type better correlates with each alluvial aquifer groundwater sample. Results from this correlation are provided in **Table 5** and the values used for this correlation are provided in **Table 1**. The results demonstrate that groundwater in the alluvial aquifer correlates better with the LCPA porewater or background groundwater than it does with the LCPB porewater. There were no piezometers or monitoring wells where the average groundwater concentration correlated better with the LCPB porewater than with the LCPA porewater or background groundwater.

Table 5 – Summary of May 2024 USEPA FALCON Evaluation

Piezometer or Well ID	Percent Correlation				Highest (Best) Correlation
	Background Groundwater	LCPB Average	LCPA Average (LCPA-1S/D, LCPA-2D & LCPA-3S/D)	LCPA-2S	
L-BMW-1D	100%	56%	30%	59%	Background
L-BMW-1S	100%	59%	34%	62%	Background
L-BMW-2D	100%	55%	30%	59%	Background
L-BMW-2S	100%	58%	36%	63%	Background
L-AM-1D	43%	81%	99%	97%	LCPA-Average
L-AM-1S	99%	56%	28%	57%	Background
L-AMW-8	24%	74%	98%	90%	LCPA-Average
L-LMW-1S	93%	69%	62%	83%	Background
L-LMW-2S	15%	69%	96%	85%	LCPA-Average
L-LMW-3S	60%	91%	92%	98%	LCPA-2S
L-LMW-4S	82%	88%	78%	94%	LCPA-2S
L-LMW-5S	100%	56%	32%	60%	Background
L-LMW-6S	100%	57%	30%	59%	Background
L-LMW-7S	68%	86%	91%	99%	LCPA-2S
L-LMW-8S	98%	71%	44%	70%	Background
L-MW-24	100%	56%	31%	60%	Background
L-MW-26	100%	57%	32%	61%	Background
L-MW-33(D)	22%	70%	98%	90%	LCPA-Average
L-MW-34(D)	32%	73%	99%	94%	LCPA-Average
L-MW-35(D)	80%	84%	82%	96%	LCPA-2S
L-S-1	100%	55%	30%	58%	Background
L-TMW-1	100%	59%	35%	64%	Background
L-TMW-2	100%	58%	33%	62%	Background
L-TMW-3	100%	57%	31%	60%	Background
L-TP-1D	100%	55%	27%	57%	Background
L-TP-2D	86%	83%	75%	92%	LCPA-2S
L-TP-2M	95%	78%	60%	82%	Background
L-TP-3D	19%	72%	98%	89%	LCPA-Average
L-TP-3M	32%	76%	99%	94%	LCPA-Average
L-TP-4D	91%	75%	68%	88%	Background
L-UMW-1D	100%	55%	25%	55%	Background
L-UMW-2D	93%	78%	63%	84%	Background
L-UMW-3D	39%	81%	98%	94%	LCPA-Average
L-UMW-4D	16%	71%	98%	87%	LCPA-Average
L-UMW-5D	34%	76%	99%	93%	LCPA-Average
L-UMW-6D	4%	62%	94%	80%	LCPA-Average
L-UMW-7D	100%	57%	28%	57%	Background
L-UMW-8D	100%	60%	30%	59%	Background
L-UMW-9D	99%	54%	25%	54%	Background

Notes

1) Values display percent correlation between data collected in May 2024 for each monitoring well and the LPCA, LCPB, or background fingerprints.
2) The higher values are shaded darker and indicate better correlation.
3) More information on the calculation of these numbers is provided in Table 1.

Tables

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-BMW-1D	L-BMW-1S	L-BMW-2D	L-BMW-2S	L-AM-1D	L-AM-1S	L-AMW-8
ALKALINITY	mg/L	427	690	453	385	193	658	86.3
BORON, TOTAL	mg/L	0.0751	0.0923	0.0696	0.0535	7.58	0.286	8.31
CALCIUM, TOTAL	mg/L	127	193	139	128	108	194	71.0
CHLORIDE, TOTAL	mg/L	7.90	6.90	4.50	2.90	49.7	67.1	23.6
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	9.97	31.2	7.15	0.00455	5.37	0.706	2.47
MAGNESIUM, TOTAL	mg/L	27.9	43.6	32.3	20.2	13.5	40.2	8.64
MANGANESE, TOTAL	mg/L	0.69	2.49	0.274	0.00290	0.297	0.301	0.329
POTASSIUM, TOTAL	mg/L	4.07	5.52	4.35	6.15	8.05	7.16	6.36
SODIUM, TOTAL	mg/L	8.51	15.5	6.32	5.11	102	42.0	77.5
SULFATE, TOTAL	mg/L	22.8	65.6	23.2	41.9	351	15.7	262
Sum		636.0	1054.0	670.2	589.4	838.6	1025.5	546.6

Analyte	L-BMW-1D	L-BMW-1S	L-BMW-2D	L-BMW-2S	L-AM-1D	L-AM-1S	L-AMW-8
ALKALINITY	67%	65%	68%	65%	23%	64%	16%
BORON, TOTAL	0.012%	0.0088%	0.01%	0.0091%	0.9%	0.028%	1.5%
CALCIUM, TOTAL	20%	18%	21%	22%	13%	19%	13%
CHLORIDE, TOTAL	1.2%	0.65%	0.67%	0.49%	5.9%	6.5%	4.3%
FLUORIDE, TOTAL	0.0094%	0.0057%	0.009%	0.01%	0.0072%	0.0059%	0.011%
IRON, TOTAL	1.6%	3%	1.1%	0.00077%	0.64%	0.069%	0.45%
MAGNESIUM, TOTAL	4.4%	4.1%	4.8%	3.4%	1.6%	3.9%	1.6%
MANGANESE, TOTAL	0.11%	0.24%	0.041%	0.00049%	0.035%	0.029%	0.06%
POTASSIUM, TOTAL	0.64%	0.52%	0.65%	1%	0.96%	0.7%	1.2%
SODIUM, TOTAL	1.3%	1.5%	0.94%	0.87%	12%	4.1%	14%
SULFATE, TOTAL	3.6%	6.2%	3.5%	7.1%	42%	1.5%	48%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTR
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LMW-1S	L-LMW-2S	L-LMW-3S	L-LMW-4S	L-LMW-5S	L-LMW-6S	L-LMW-7S
ALKALINITY	mg/L	397	47.8	180	289	472	358	229
BORON, TOTAL	mg/L	1.86	4.07	3.92	7.85	0.0616	1.17	8.0
CALCIUM, TOTAL	mg/L	163	64.2	73.7	96.1	165	105	95.4
CHLORIDE, TOTAL	mg/L	4.70	19.8	22.2	25.8	2.70	2.80	16.4
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.35	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	4.24	0.00455	5.21	8.26	0.0402	17.8	2.96
MAGNESIUM, TOTAL	mg/L	28.6	0.0905	7.16	18.8	16.2	19.6	20.1
MANGANESE, TOTAL	mg/L	1.68	0.0011	0.494	1.5	0.0153	1.25	0.758
POTASSIUM, TOTAL	mg/L	4.66	9.01	7.56	6.12	3.41	4.81	6.07
SODIUM, TOTAL	mg/L	9.83	66.1	97.7	91.0	7.12	11	70.3
SULFATE, TOTAL	mg/L	180	206	210	197	29.0	20.1	243
Sum		795.6	417.1	608.3	741.5	695.6	541.6	692.0

Analyte	L-LMW-1S	L-LMW-2S	L-LMW-3S	L-LMW-4S	L-LMW-5S	L-LMW-6S	L-LMW-7S
ALKALINITY	50%	11%	30%	39%	68%	66%	33%
BORON, TOTAL	0.23%	0.98%	0.64%	1.1%	0.0089%	0.22%	1.2%
CALCIUM, TOTAL	20%	15%	12%	13%	24%	19%	14%
CHLORIDE, TOTAL	0.59%	4.7%	3.6%	3.5%	0.39%	0.52%	2.4%
FLUORIDE, TOTAL	0.0075%	0.014%	0.058%	0.0081%	0.0086%	0.011%	0.0087%
IRON, TOTAL	0.53%	0.0011%	0.86%	1.1%	0.0058%	3.3%	0.43%
MAGNESIUM, TOTAL	3.6%	0.022%	1.2%	2.5%	2.3%	3.6%	2.9%
MANGANESE, TOTAL	0.21%	0.00026%	0.081%	0.2%	0.0022%	0.23%	0.11%
POTASSIUM, TOTAL	0.59%	2.2%	1.2%	0.83%	0.49%	0.89%	0.88%
SODIUM, TOTAL	1.2%	16%	16%	12%	1%	2%	10%
SULFATE, TOTAL	23%	49%	35%	27%	4.2%	3.7%	35%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

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Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LMW-8S	L-MW-24	L-MW-26	L-MW-33(D)	L-MW-34(D)	L-MW-35(D)	L-S-1
ALKALINITY	mg/L	214	349	443	128	169	326	439
BORON, TOTAL	mg/L	1.51	0.0731	0.0787	8.50	9.11	7.57	0.163
CALCIUM, TOTAL	mg/L	51.8	110	132	105	121	124	137
CHLORIDE, TOTAL	mg/L	1.80	3.60	7.20	28.0	20.0	15.5	6.20
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06
IRON, TOTAL	mg/L	1.47	0.0193	0.04270	5.47	7.07	6.07	0.153
MAGNESIUM, TOTAL	mg/L	8.7	21.4	24.8	22.5	28.0	28.0	21.6
MANGANESE, TOTAL	mg/L	0.466	0.00600	0.18	0.32	0.313	0.402	0.96
POTASSIUM, TOTAL	mg/L	3.79	4.48	4.46	6.62	7.26	5.38	23.4
SODIUM, TOTAL	mg/L	28.3	6.71	5.83	90.6	86.4	68.9	4.34
SULFATE, TOTAL	mg/L	39.8	21.9	30.4	430	421	254	19.8
Sum		351.7	517.2	648.1	825.1	869.2	835.9	652.7

Analyte	L-LMW-8S	L-MW-24	L-MW-26	L-MW-33(D)	L-MW-34(D)	L-MW-35(D)	L-S-1
ALKALINITY	61%	67%	68%	16%	19%	39%	67%
BORON, TOTAL	0.43%	0.014%	0.012%	1%	1%	0.91%	0.025%
CALCIUM, TOTAL	15%	21%	20%	13%	14%	15%	21%
CHLORIDE, TOTAL	0.51%	0.7%	1.1%	3.4%	2.3%	1.9%	0.95%
FLUORIDE, TOTAL	0.017%	0.012%	0.0093%	0.0073%	0.0069%	0.0072%	0.0092%
IRON, TOTAL	0.42%	0.0037%	0.0066%	0.66%	0.81%	0.73%	0.023%
MAGNESIUM, TOTAL	2.5%	4.1%	3.8%	2.7%	3.2%	3.3%	3.3%
MANGANESE, TOTAL	0.13%	0.0012%	0.028%	0.039%	0.036%	0.048%	0.15%
POTASSIUM, TOTAL	1.1%	0.87%	0.69%	0.8%	0.84%	0.64%	3.6%
SODIUM, TOTAL	8%	1.3%	0.9%	11%	9.9%	8.2%	0.66%
SULFATE, TOTAL	11%	4.2%	4.7%	52%	48%	30%	3%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTR
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-TMW-1	L-TMW-2	L-TMW-3	L-TP-1D	L-TP-2D	L-TP-2M	L-TP-3D
ALKALINITY	mg/L	567	615	411	526	275	334	126
BORON, TOTAL	mg/L	0.11	0.0939	0.0836	0.0676	1.38	0.826	9.41
CALCIUM, TOTAL	mg/L	162	187	124	144	98.9	111	94.1
CHLORIDE, TOTAL	mg/L	2.90	5.40	2.40	4.80	27.4	22.4	31.6
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.06	0.06	0.14	0.06	0.06
IRON, TOTAL	mg/L	3.39	2.0	0.364	8.85	3.6	4.0	4.2
MAGNESIUM, TOTAL	mg/L	43.3	41.8	24.7	36.00	17.4	17.3	20.4
MANGANESE, TOTAL	mg/L	4.86	2.89	0.36	0.259	0.316	0.536	0.164
POTASSIUM, TOTAL	mg/L	5.34	6.45	5.27	4.58	5.6	6.78	6.83
SODIUM, TOTAL	mg/L	11.3	10.2	6.66	13.7	58.4	62.7	120
SULFATE, TOTAL	mg/L	61.4	51.4	25.1	10.5	172	127	445
Sum		861.7	922.3	600.0	748.8	660.1	686.6	857.8

Analyte	L-TMW-1	L-TMW-2	L-TMW-3	L-TP-1D	L-TP-2D	L-TP-2M	L-TP-3D
ALKALINITY	66%	67%	69%	70%	42%	49%	15%
BORON, TOTAL	0.013%	0.01%	0.014%	0.009%	0.21%	0.12%	1.1%
CALCIUM, TOTAL	19%	20%	21%	19%	15%	16%	11%
CHLORIDE, TOTAL	0.34%	0.59%	0.4%	0.64%	4.2%	3.3%	3.7%
FLUORIDE, TOTAL	0.007%	0.0065%	0.01%	0.008%	0.021%	0.0087%	0.007%
IRON, TOTAL	0.39%	0.22%	0.061%	1.2%	0.55%	0.58%	0.49%
MAGNESIUM, TOTAL	5%	4.5%	4.1%	4.8%	2.6%	2.5%	2.4%
MANGANESE, TOTAL	0.56%	0.31%	0.06%	0.035%	0.048%	0.078%	0.019%
POTASSIUM, TOTAL	0.62%	0.7%	0.88%	0.61%	0.85%	0.99%	0.8%
SODIUM, TOTAL	1.3%	1.1%	1.1%	1.8%	8.8%	9.1%	14%
SULFATE, TOTAL	7.1%	5.6%	4.2%	1.4%	26%	18%	52%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
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Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-TP-3M	L-TP-4D	L-UMW-1D	L-UMW-2D	L-UMW-3D	L-UMW-4D	L-UMW-5D
ALKALINITY	mg/L	149	327	565	389	86	78.8	120
BORON, TOTAL	mg/L	7.19	6.09	0.225	0.872	11.3	8.52	14.4
CALCIUM, TOTAL	mg/L	93.3	121	145	148	62.8	64.5	101
CHLORIDE, TOTAL	mg/L	30.7	14.9	5.40	21.1	24.8	25.8	23.7
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.35	0.06	0.06	0.22	0.06
IRON, TOTAL	mg/L	6.49	5.64	18.6	4.81	0.067	0.268	0.0166
MAGNESIUM, TOTAL	mg/L	19.2	31.0	34.6	28.7	2.08	6.72	0.0329
MANGANESE, TOTAL	mg/L	1.01	0.326	0.454	0.533	0.0563	0.343	0.013
POTASSIUM, TOTAL	mg/L	5.03	4.68	5.76	8.23	9.97	8.19	16.1
SODIUM, TOTAL	mg/L	88.5	27.5	13.8	81.3	65.0	88.4	82.7
SULFATE, TOTAL	mg/L	357	173	1.3	169	164	308	279
Sum		757.5	711.2	790.5	851.6	426.1	589.8	637.0

Analyte	L-TP-3M	L-TP-4D	L-UMW-1D	L-UMW-2D	L-UMW-3D	L-UMW-4D	L-UMW-5D
ALKALINITY	20%	46%	71%	46%	20%	13%	19%
BORON, TOTAL	0.95%	0.86%	0.028%	0.1%	2.7%	1.4%	2.3%
CALCIUM, TOTAL	12%	17%	18%	17%	15%	11%	16%
CHLORIDE, TOTAL	4.1%	2.1%	0.68%	2.5%	5.8%	4.4%	3.7%
FLUORIDE, TOTAL	0.0079%	0.0084%	0.044%	0.007%	0.014%	0.037%	0.0094%
IRON, TOTAL	0.86%	0.79%	2.4%	0.56%	0.016%	0.045%	0.0026%
MAGNESIUM, TOTAL	2.5%	4.4%	4.4%	3.4%	0.49%	1.1%	0.0052%
MANGANESE, TOTAL	0.13%	0.046%	0.057%	0.063%	0.013%	0.058%	0.002%
POTASSIUM, TOTAL	0.66%	0.66%	0.73%	0.97%	2.3%	1.4%	2.5%
SODIUM, TOTAL	12%	3.9%	1.7%	9.5%	15%	15%	13%
SULFATE, TOTAL	47%	24%	0.16%	20%	38%	52%	44%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTR
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-UMW-6D	L-UMW-7D	L-UMW-8D	L-UMW-9D	L-LCPA-1D	L-LCPA-1S	L-LCPA-2D
ALKALINITY	mg/L	68.8	468	154	455	77.6	120	128
BORON, TOTAL	mg/L	10.9	1.79	0.531	0.0778	10.0	10.3	21.7
CALCIUM, TOTAL	mg/L	147	144	38.2	112	78.2	97.1	10.6
CHLORIDE, TOTAL	mg/L	19.9	1.70	1.90	25.9	15.2	18.9	19.8
FLUORIDE, TOTAL	mg/L	0.06	0.06	0.18	0.06	0.20	0.088	0.14
IRON, TOTAL	mg/L	1.16	11.5	5.99	23.0	0.178	0.138	0.0869
MAGNESIUM, TOTAL	mg/L	6.84	21.5	9.46	29.7	4.47	0.184	5.43
MANGANESE, TOTAL	mg/L	0.699	1.58	0.230	0.386	0.00410	0.00320	0.00250
POTASSIUM, TOTAL	mg/L	16.6	5.17	2.91	4.03	14.0	17.8	42.1
SODIUM, TOTAL	mg/L	153	30.1	12.2	13.7	60.0	71.1	50.5
SULFATE, TOTAL	mg/L	595	13.6	7.0	0.275	257	267	306
Sum		1020.0	699.0	232.6	664.1	516.9	602.6	584.4

Analyte	L-UMW-6D	L-UMW-7D	L-UMW-8D	L-UMW-9D	L-LCPA-1D	L-LCPA-1S	L-LCPA-2D
ALKALINITY	6.7%	67%	66%	69%	15%	20%	22%
BORON, TOTAL	1.1%	0.26%	0.23%	0.012%	1.9%	1.7%	3.7%
CALCIUM, TOTAL	14%	21%	16%	17%	15%	16%	1.8%
CHLORIDE, TOTAL	2%	0.24%	0.82%	3.9%	2.9%	3.1%	3.4%
FLUORIDE, TOTAL	0.0059%	0.0086%	0.077%	0.009%	0.039%	0.015%	0.024%
IRON, TOTAL	0.11%	1.6%	2.6%	3.5%	0.034%	0.023%	0.015%
MAGNESIUM, TOTAL	0.67%	3.1%	4.1%	4.5%	0.86%	0.031%	0.93%
MANGANESE, TOTAL	0.069%	0.23%	0.099%	0.058%	0.00079%	0.00053%	0.00043%
POTASSIUM, TOTAL	1.6%	0.74%	1.3%	0.61%	2.7%	3%	7.2%
SODIUM, TOTAL	15%	4.3%	5.2%	2.1%	12%	12%	8.6%
SULFATE, TOTAL	58%	1.9%	3%	0.041%	50%	44%	52%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for CCR Rule monitoring wells collected in May 2024; Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.
2) mg/L - milligrams per liter.
3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTR
Reviewed By: MNH

Table 1
Summary of Concentrations Used for FALCON Correlation
LCPB Anternative Source Demonstration
Labadie Energy Center, Franklin County, MO

Analyte	Units	L-LCPA-2S	L-LCPA-3D	L-LCPA-3S	L-LCPB-1	L-LCPB-2	L-LCPB-3
ALKALINITY	mg/L	208	80.2	91.8	1070	861	1340
BORON, TOTAL	mg/L	3.36	8.10	8.44	28.2	14.8	25.7
CALCIUM, TOTAL	mg/L	76.5	87.7	76.9	11.4	22.6	11.4
CHLORIDE, TOTAL	mg/L	25.5	18.9	18.6	15.6	16.2	18.4
FLUORIDE, TOTAL	mg/L	0.170	0.160	0.160	2.40	1.00	1.90
IRON, TOTAL	mg/L	0.0279	0.122	0.112	0.0273	0.129	0.384
MAGNESIUM, TOTAL	mg/L	45.5	1.54	0.445	0.0844	0.0874	0.386
MANGANESE, TOTAL	mg/L	0.0392	0.00230	0.00250	0.00250	0.00250	0.00230
POTASSIUM, TOTAL	mg/L	3.54	14.2	16.6	51.0	52.6	48.2
SODIUM, TOTAL	mg/L	67.2	69.0	84.0	935	750	969
SULFATE, TOTAL	mg/L	254	295	272	1060	728	999
Sum		683.8	574.9	569.1	3173.7	2446.4	3414.4

Analyte	L-LCPA-2S	L-LCPA-3D	L-LCPA-3S	L-LCPB-1	L-LCPB-2	L-LCPB-3
ALKALINITY	30%	14%	16%	34%	35%	39%
BORON, TOTAL	0.49%	1.4%	1.5%	0.89%	0.6%	0.75%
CALCIUM, TOTAL	11%	15%	14%	0.36%	0.92%	0.33%
CHLORIDE, TOTAL	3.7%	3.3%	3.3%	0.49%	0.66%	0.54%
FLUORIDE, TOTAL	0.025%	0.028%	0.028%	0.076%	0.041%	0.056%
IRON, TOTAL	0.0041%	0.021%	0.02%	0.00086%	0.0053%	0.011%
MAGNESIUM, TOTAL	6.7%	0.27%	0.078%	0.0027%	0.0036%	0.011%
MANGANESE, TOTAL	0.0057%	0.0004%	0.00044%	0.000079%	0.0001%	0.000067%
POTASSIUM, TOTAL	0.52%	2.5%	2.9%	1.6%	2.2%	1.4%
SODIUM, TOTAL	9.8%	12%	15%	29%	31%	28%
SULFATE, TOTAL	37%	51%	48%	33%	30%	29%
Sum	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes

1) Values for pore-water samples from LCPB ASD Investigation collected in February-March 2018.

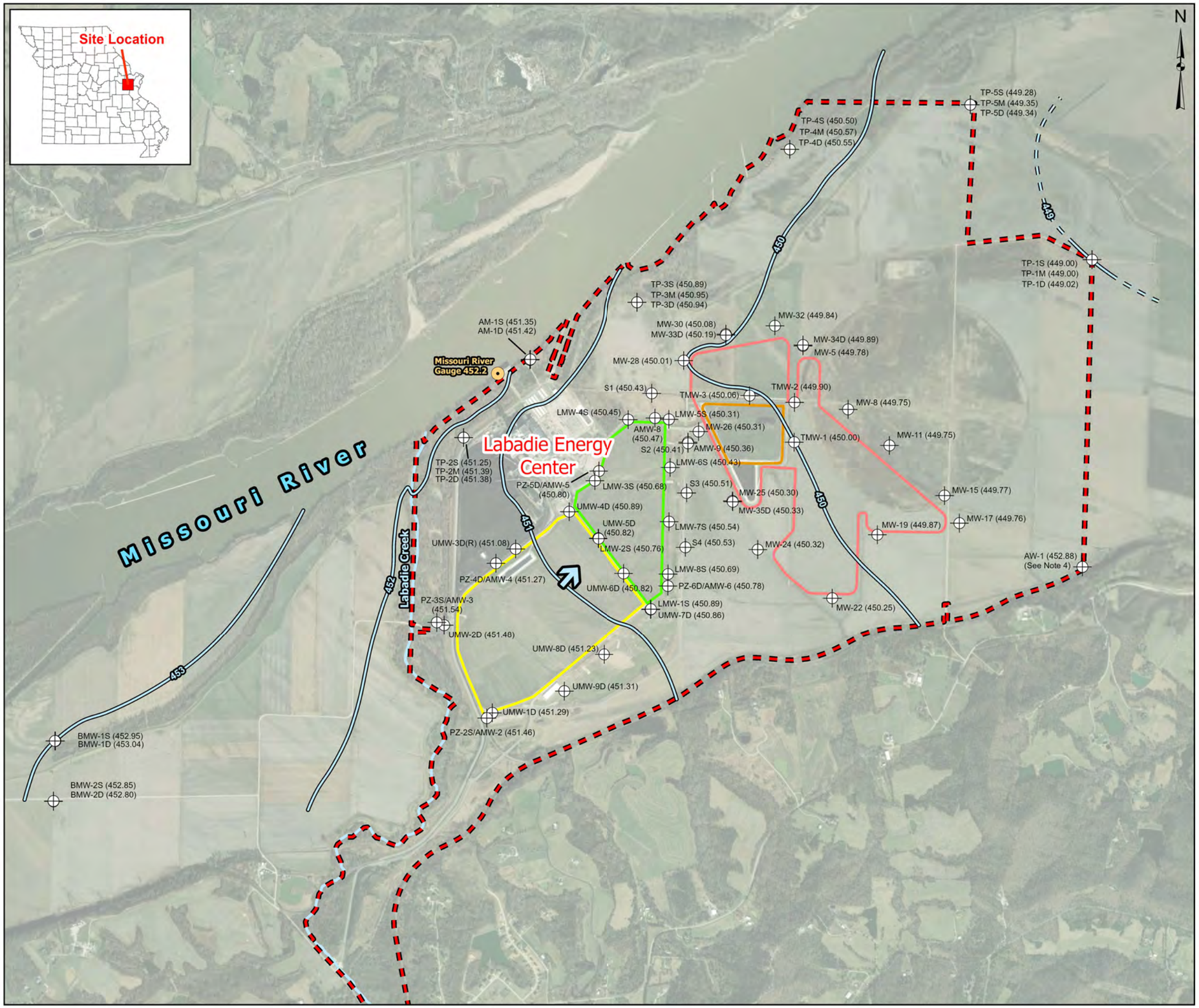
2) mg/L - milligrams per liter.

3) One-half the value of the Method Detection Limit (MDL) is used for non-detect values.

Prepared By: GTM
Checked By: JTR
Reviewed By: MNH

Appendix D

2024 Potentiometric Surface Maps



TITLE

FEBRUARY 9, 2024 POTENTIOMETRIC SURFACE MAP

Legend

- Labadie Energy Center Property Boundary

CCR Units

- LCPA - Closed Bottom Ash Surface Impoundment
- LCPB - Closed Fly Ash Surface Impoundment
- LCL1 - Utility Waste Landfill Cell 1
- Proposed Final UWL Fence Perimeter

Monitoring Well or Piezometer

- Monitoring Well or Piezometer

Surface Water Elevation Measurement Location

- Missouri River Gauge

Groundwater Elevation Contours

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

NOTES

1. All locations and boundaries are approximate.
2. Groundwater elevations displayed in FT MSL (Feet above Mean Sea Level).
3. Missouri River level obtained from USGS Labadie gauge 06935550.
4. AW-1 was not used in potentiometric surface contouring due to localized conditions causing an artificially high potentiometric elevation.

REFERENCES

1. Zahner and Associates, Inc. 2016. Lot Consolidation Plat of "Labadie Energy Center" - Prepared for Ameren Missouri. Revised June 15, 2016.
2. USGS (United States Geological Survey), National Water Information System, USGS Gauge 06935550 Missouri River near Labadie, MO.

0 500 1,000 2,000 3,000 4,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

ROCKSMITH GEOENGINEERING

DESIGN	JSI	YYYY-MM-DD	2024-09-09
PREPARED	ANT	PROJECT No	23007-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D1

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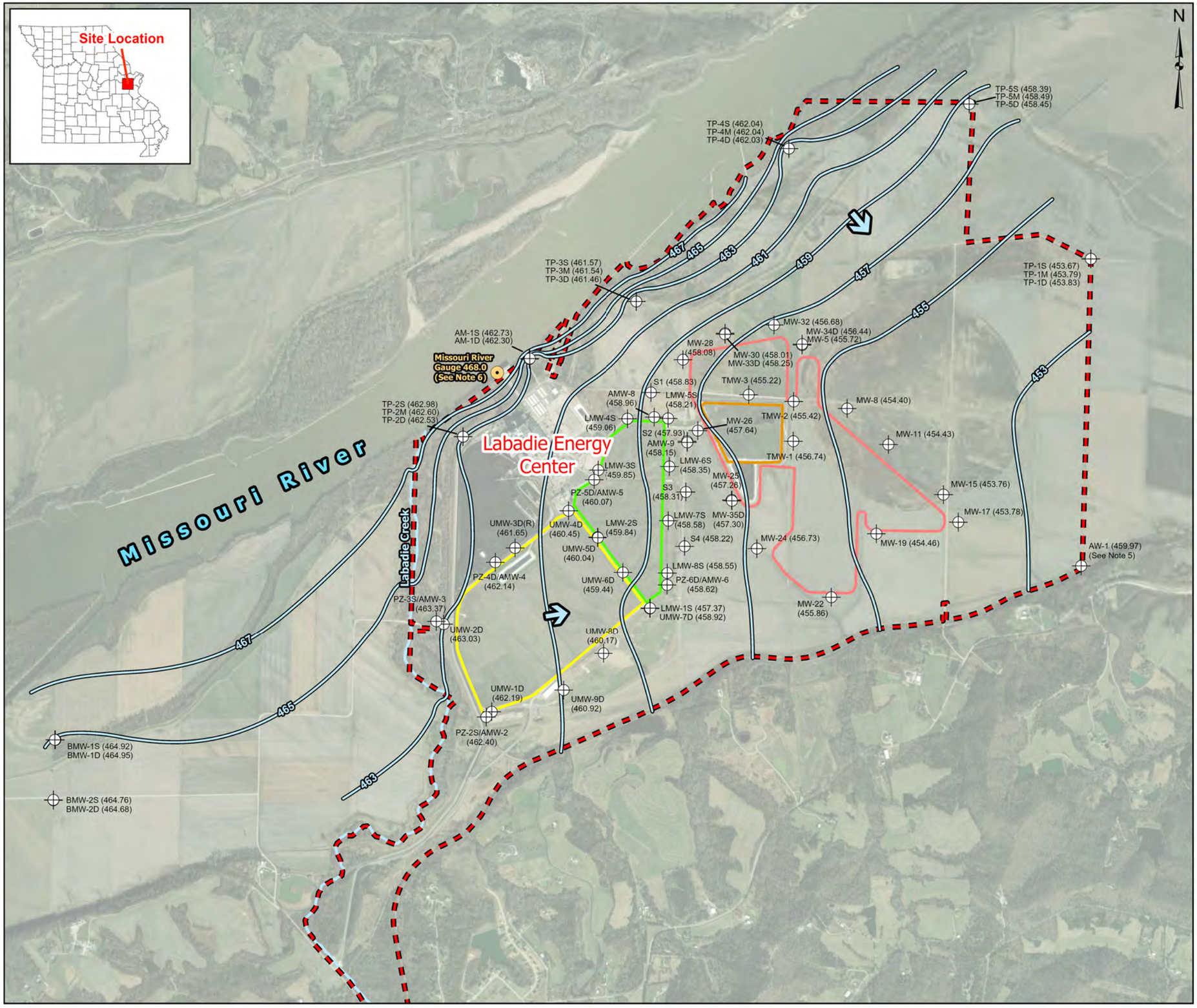

TITLE

MAY 10, 2024 POTENTIOMETRIC SURFACE MAP

Legend

- Labadie Energy Center Property Boundary

CCR Units

- LCPA - Closed Bottom Ash Surface Impoundment
- LCPB - Closed Fly Ash Surface Impoundment
- LCL1 - Utility Waste Landfill Cell 1
- Proposed Final UWL Fence Perimeter

Monitoring Well or Piezometer

- Monitoring Well or Piezometer

Surface Water Elevation Measurement Location

- Missouri River Gauge

Groundwater Elevation Contours

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

NOTES

1. All locations and boundaries are approximate.
2. Groundwater elevations displayed in FT MSL (Feet above Mean Sea Level).
3. Missouri River Level obtained from USGS Labadie gauge 06935550.
4. Due to the large range of groundwater elevations measured across the site, a 2-foot ccntour interval is displayed for clarity.
5. AW-1 was not used in potentiometric surface contouring due to localized conditions causing an artificially high potentiometric elevation.
6. The large contour change directly adjacent to the river is caused by a jump in the river level from 466 to 468 the day before the sampling event, along with a jump from 454 to 470 two weeks prior.

REFERENCES

1. Zahner and Associates, Inc. 2016. Lot Consolidation Plat of "Labadie Energy Center" - Prepared for Ameren Missouri. Revised June 15, 2016.
2. USGS (United States Geological Survey), National Water Information System, USGS Gauge 06935550 Missouri River near Labadie, MO.

0 5001,000 2,000 3,000 4,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

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PREPARED	JTA	PROJECT No	23007-24
REVIEW	GTM		
APPROVED	MNH		FIGURE D2

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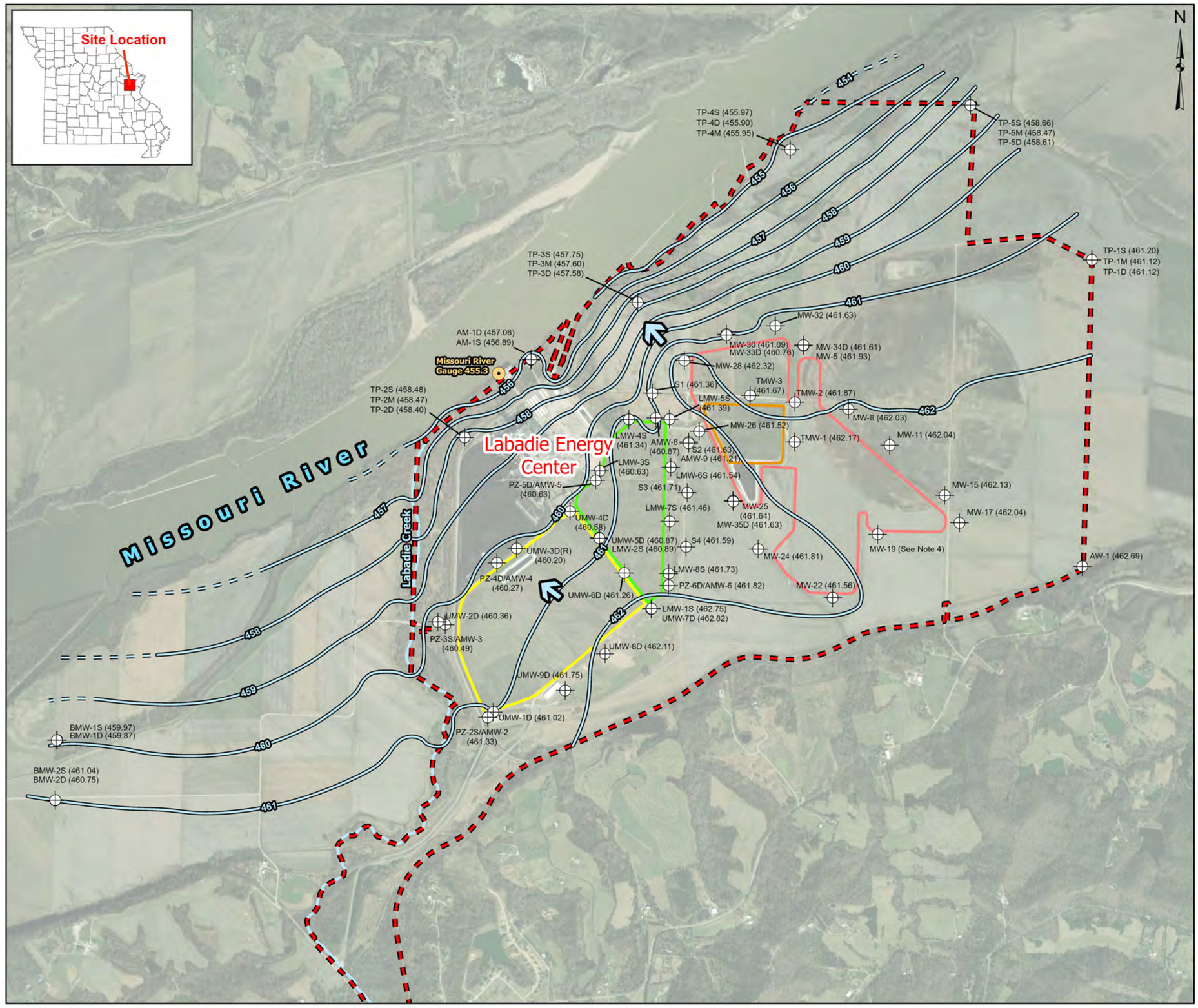

TITLE

JULY 24, 2024 POTENTIOMETRIC SURFACE MAP

Legend

- Labadie Energy Center Property Boundary

CCR Units

- LCPA - Closed Bottom Ash Surface Impoundment
- LCPB - Closed Fly Ash Surface Impoundment
- LCL1 - Utility Waste Landfill Cell 1
- Proposed Final UWL Fence Perimeter

Monitoring Well or Piezometer

- Monitoring Well or Piezometer

Surface Water Elevation Measurement Location

- Missouri River Gauge

Groundwater Elevation Contours

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

NOTES

1. All locations and boundaries are approximate.
2. Groundwater elevations displayed in FT MSL (Feet above Mean Sea Level).
3. Missouri River Level obtained from USGS Labadie gauge 06935550.
4. MW-19 was inaccessible due to standing water, therefore no water level measurement as collected.

REFERENCES

1. Zahner and Associates, Inc. 2016. Lot Consolidation Plat of "Labadie Energy Center" - Prepared for Ameren Missouri. Revised June 15, 2016.
2. USGS (United States Geological Survey), National Water Information System, USGS Gauge 06935550 Missouri River near Labadie, MO.

0 500 1,000 2,000 3,000 4,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

Ameren

ROCKSMITH GEOENGINEERING

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PREPARED	JTR	PROJECT No.	23007-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D3

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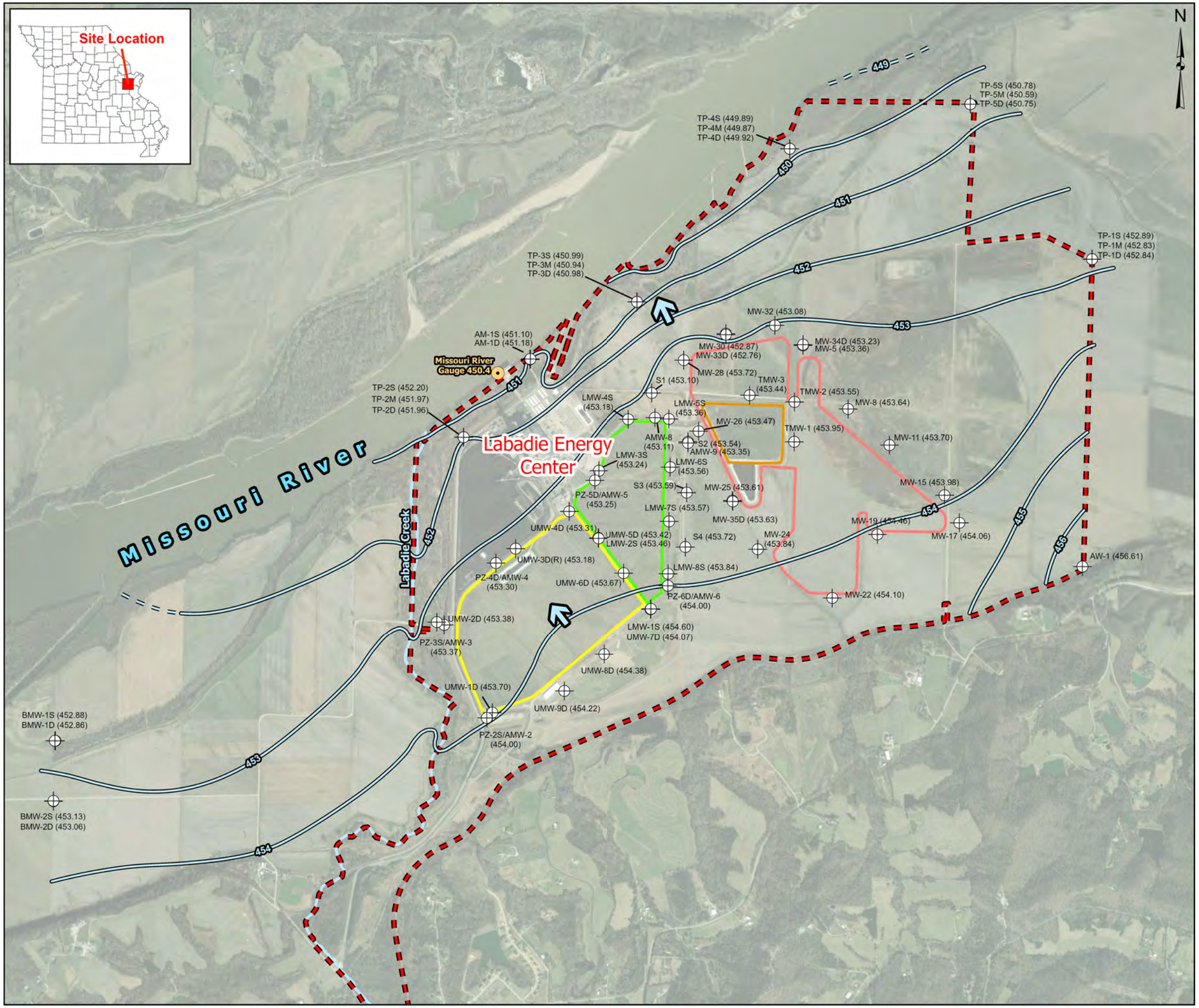

TITLE

OCTOBER 28, 2024 POTENTIOMETRIC SURFACE MAP

Legend

- Labadie Energy Center Property Boundary

CCR Units

- LCPA - Closed Bottom Ash Surface Impoundment
- LCPB - Closed Fly Ash Surface Impoundment
- LCL1 - Utility Waste Landfill Cell 1
- Proposed Final UWL Fence Perimeter

Monitoring Well or Piezometer

- Monitoring Well or Piezometer

Surface Water Elevation Measurement Location

- Missouri River Gauge

Groundwater Elevation Contours

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

NOTES

1. All locations and boundaries are approximate.
2. Groundwater elevations displayed in FT MSL (Feet above Mean Sea Level).
3. Missouri River Level obtained from USGS Labadie gauge 06935550.

REFERENCES

1. Zahner and Associates, Inc. 2016. Lot Consolidation Plat of "Labadie Energy Center" - Prepared for Ameren Missouri. Revised June 15, 2016.
2. USGS (United States Geological Survey), National Water Information System, USGS Gauge 06935550 Missouri River near Labadie, MO.

0 500 1,000 2,000 3,000 4,000 Feet

PROJECT
CCR RULE GROUNDWATER MONITORING PROGRAM

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

ROCKSMITH GEOENGINEERING

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PREPARED	JTR	PROJECT No.	23007-24
REVIEW	GTM		
APPROVED	MNH		

FIGURE D4

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