GOLDER
MEMBER OF WSP

REPORT

2021 Annual Groundwater Monitoring and Corrective Action Report

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

Submitted to:

Ameren Missouri

1901 Chouteau Avenue, St. Louis, Missouri 63103

Submitted by:

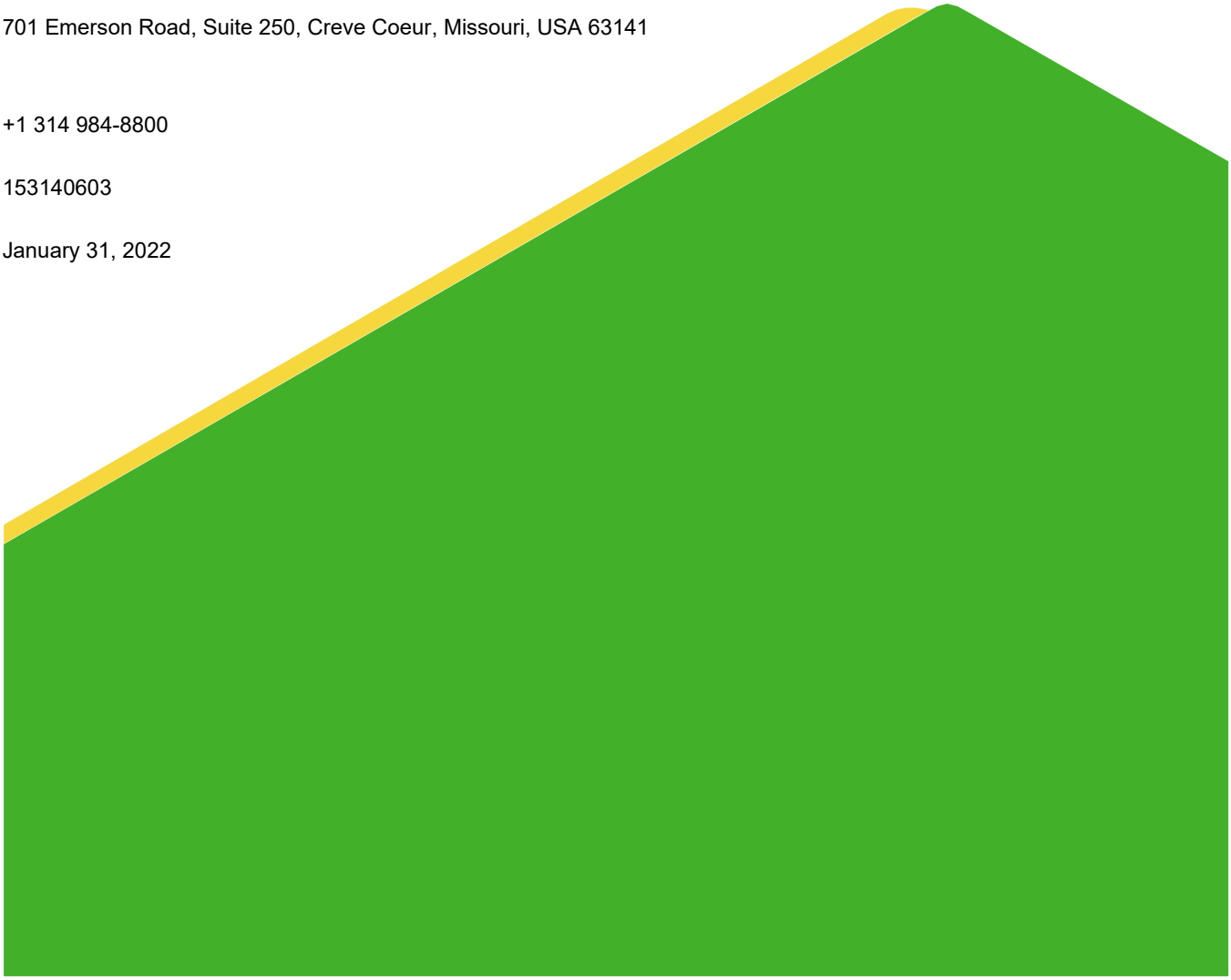
Golder Associates USA Inc.

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

+1 314 984-8800

153140603

January 31, 2022



1.0 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, 2021, through December 31, 2021, including verification results related to late 2020 sampling.

Throughout 2021, 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 2021 LCPB Sampling Events, Previous Year Verification, and Statistical Evaluations

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt Date	Parameters Collected	Verified SSIs	SSI Determination Date	ASD Completion Date
November 2020 Sampling Event	Detection Monitoring, November 2-5, 2020	December 11, 2020	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-6S, LMW-7S **Fluoride:** LMW-3S, LMW-6S, LMW-8S **Sulfate:** LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-6S, LMW-7S, LMW-8S **TDS:** LMW-7S	March 11, 2021	June 9, 2021
	Verification Sampling, January 4-6, 2021	January 14, 2020	Detected Appendix III parameters (See Note 1)			
February/April 2021 Sampling Event	Detection Monitoring, February 18 & April 15-21, 2021 (See Note 2)	March 11, 2021 & June 2, 2021	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-6S, LMW-7S, LMW-8S **Fluoride:** LMW-1S, LMW-3S, LMW-4S, LMW-6S **Sulfate:** LMW-2S, LMW-3S, LMW-4S, LMW-6S, LMW-7S, LMW-8S **TDS:** LMW-7S, LMW-8S	August 31, 2021	November 29, 2021
	Verification Sampling, June 7-8, 2021	June 21, 2021	Detected Appendix III parameters (See Note 1)			
November 2021 Sampling Event	Detection Monitoring, November 1-5, 2021	December 28, 2021	Appendix III, Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2022.		

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) Background Monitoring Wells BMW-1S and BMW-2S were sampled in February 2021 for statistical analysis purposes. The remaining LCPB monitoring wells were sampled during April 2021.
3) SSI – Statistically Significant Increase.
4) ASD – Alternative Source Demonstration.
5) TDS – Total Dissolved Solids.

As outlined in section 257.95(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 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 2021 with no new wells being installed or decommissioned. Substantial closure of the LCPB was completed in 2020, with the geomembrane liner 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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2.0 INSTALLATION OR DECOMMISSIONING 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 (10) groundwater monitoring wells screened in the uppermost aquifer and is displayed in **Figure 1**. No new monitoring wells were installed or decommissioned in 2021 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.

3.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections discuss the sampling events completed for the LCPB CCR Unit in 2021. **Table 2** below provides a summary of the groundwater samples collected in 2021 including the number of samples, the date of the 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										
January 2021 Verification Sampling	-	-	1/6/2021	-	1/4/2021	-	1/4/2021	1/5/2021	1/5/2021	-	Detection
February-April 2021 Detection Monitoring	2/18/2021	2/18/2021	4/15/2021	4/21/2021	4/20/2021	4/20/2021	4/19/2021	4/16/2021	4/15/2021	4/15/2021	Detection
June 2021 Verification Sampling	-	-	-	-	-	-	6/7/2021	-	-	6/8/2021	Detection
November 2021 Detection Monitoring	11/1/2021	11/1/2021	11/4/2021	11/2/2021	11/3/2021	11/3/2021	11/2/2021	11/5/2021	11/5/2021	11/5/2021	Detection
Total Number of Samples	2	2	3	2	3	2	4	3	3	3	NA

Notes:
1.) Detection Monitoring Events tested for Appendix III Parameters.
2.) Verification Sampling Events tested for Appendix III Parameters with initial exceedances that have not already been verified.
3.) "-" No sample collected.
4.) NA - Not applicable.
5.) Background monitoring wells were sampled in February 2021 for statistical analysis.

3.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 2-5, 2020. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2020 event were not completed until 2021 and are therefore included in this report. Detections of Appendix III analytes triggered a verification sampling event, which was completed on January 4-6, 2021, and verified SSIs. As outlined in the Statistical Analysis Plan for the Site, updates to the statistical limits are completed once four (4) to eight (8) new sample results are available. During the statistical analysis of the November 2020 sampling event, the statistical limits used to determine an SSI were

updated according to the Statistical Analysis Plan. **Table 3** summarizes the results of the statistical analysis of the November 2020 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**.

As outlined in section 257.95(e)(2) of the CCR Rule, the owner or operator may demonstrate that a source other than the CCR Unit has caused an SSI and that the apparent SSI was the result of an alternative source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. An ASD was completed for these SSIs and is provided in **Appendix B**. This ASD demonstrates that SSIs at the monitoring wells around LCPB are not caused by the LCPB CCR Unit and the LCPB CCR Unit remains in Detection Monitoring.

Detection Monitoring samples were collected at background monitoring wells BMW-1S and BMW-2S on February 18, 2021, and at monitoring wells LMW-1S - LMW-8S from April 15-21, 2021. Testing was completed for all Appendix III analytes as well as major cations and anions. Detections of Appendix III analytes triggered Verification Sampling, which was completed June 7-8, 2021, and the testing results verified SSIs. **Table 4** summarizes the results of the statistical analysis of the February/April 2021 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**. As with the November 2020 sampling event, SSIs reported for the monitoring data are not caused by the LCPB CCR Unit and an ASD for this is provided in **Appendix C**.

A Detection Monitoring sampling event was completed November 1-5, 2021, and testing was performed for all Appendix III analytes, as well as major cations and anions. Statistical analyses to evaluate for SSIs in the November 2021 data were not completed in 2021 and will be included in the 2022 Annual Report. **Table 5** summarizes the results of the November 2021 Detection Monitoring event and laboratory analytical data are provided in **Appendix A**.

3.2 Groundwater Elevation, Flow Rate and Direction

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

Groundwater elevations were used to generate potentiometric surface maps 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. During these times of high river stage and temporary flow direction changes, horizontal groundwater gradients generally decrease, and little net movement of groundwater occurs.

Groundwater flow direction and hydraulic gradient were estimated for the alluvial aquifer wells at the LEC using commercially available software. Results from this assessment indicate that while groundwater flow direction is variable, the overall net groundwater flow in the alluvial aquifer at the LEC is from the bluffs toward the river. Horizontal gradients calculated by the program range from 0.0001 to 0.0008 feet/foot with an estimated net annual groundwater movement of approximately 18 feet in the prevailing downgradient direction.

3.3 Sampling Issues

No notable sampling issues were encountered at the LCPB in 2021.

4.0 ACTIVITIES PLANNED FOR 2022

Detection Monitoring is scheduled to continue on a semi-annual basis in the second and fourth quarters of 2022. Statistical analysis of the November 2021 Detection Monitoring data will be completed in 2022 and included in the 2022 Annual Report.

Tables

Table 3
November 2020 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 2020 Detection Monitoring Event												
DATE	NA	NA	11/2/2020	11/2/2020	11/5/2020	11/5/2020	11/4/2020	11/4/2020	11/3/2020	11/5/2020	11/5/2020	11/5/2020
pH	SU	6.239-7.394	6.87	7.23	6.90	9.54	7.06	6.62	7.23	6.73	6.76	7.16
BORON, TOTAL	µg/L	147	99.0 J	45.2 J	4,390	3,150	3,840	3,120	62.0 J	3,900	7,010	2,570
CALCIUM, TOTAL	µg/L	219,000	216,000	142,000	158,000	61,900	127,000	183,000	78,200	156,000	173,000 J	70,800
CHLORIDE, TOTAL	mg/L	7.654	6.4	3.4	3.9	19.2	19.7	41.7	2.2	8.5	14.4	4.7
FLUORIDE, TOTAL	mg/L	0.2606	0.17 J	0.22	0.32	0.23	0.39	0.11 J	0.37	0.29	0.31	0.53
SULFATE, TOTAL	mg/L	75.37	66.5	73.4	142	243	158	83.5	7.6	82.0	176	80.4
TOTAL DISSOLVED SOLIDS	mg/L	792	780	524	635	445	754	717	296	669	808	440
January 2021 Verification Sampling Event												
DATE	NA	NA			1/6/2021		1/4/2021		1/4/2021	1/5/2021	1/5/2021	
pH	SU	6.239-7.394										
BORON, TOTAL	µg/L	147										
CALCIUM, TOTAL	µg/L	219000										
CHLORIDE, TOTAL	mg/L	7.654								8.0		
FLUORIDE, TOTAL	mg/L	0.2606			0.19 J		0.34		0.26		0.19 J	
SULFATE, TOTAL	mg/L	75.37								88.6 J		
TOTAL DISSOLVED SOLIDS	mg/L	792										

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

Prepared By: JSI
Checked By: EMS
Reviewed By: SCP

Table 4
February-April 2021 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
February - April 2021 Detection Monitoring Event												
DATE	NA	NA	2/18/2021	2/18/2021	4/15/2021	4/21/2021	4/20/2021	4/20/2021	4/19/2021	4/16/2021	4/15/2021	4/15/2021
pH	SU	6.239-7.394	6.73	7.16	7.03	9.38	7.33	7.07	7.08	6.93	6.88	7.08
BORON, TOTAL	µg/L	147	97.3 J	42.0 J	687	3,440	3,940	8,780	63.1 J	4,420	12,800	8,550
CALCIUM, TOTAL	µg/L	219,000	212,000	133,000	129,000	53,500	119,000	115,000	143,000	120,000	128,000	224,000
CHLORIDE, TOTAL	mg/L	7.654	5.1	4.0	1.9	19.0	22.8	25.4 J	3.4	10.1 J	21.8	18.0
FLUORIDE, TOTAL	mg/L	0.2606	ND	0.14 J	0.32	0.21	0.37	0.30	0.27	0.30 J	ND	ND
SULFATE, TOTAL	mg/L	75.37	70.4	60.6	53.7	199	192	225	11.6	83.9 J	294	604
TOTAL DISSOLVED SOLIDS	mg/L	792	792	483	542	402	358	392	496	607	812	1,270
June 2021 Verification Sampling Event												
DATE	NA	NA							6/7/2021			6/8/2021
pH	SU	6.239-7.394										
BORON, TOTAL	µg/L	147										
CALCIUM, TOTAL	µg/L	219,000										194,000
CHLORIDE, TOTAL	mg/L	7.654										16.2
FLUORIDE, TOTAL	mg/L	0.2606							0.19 J			
SULFATE, TOTAL	mg/L	75.37										
TOTAL DISSOLVED SOLIDS	mg/L	792										1,110

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. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
8. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: EMS
Checked By: LMS
Reviewed By: SCP

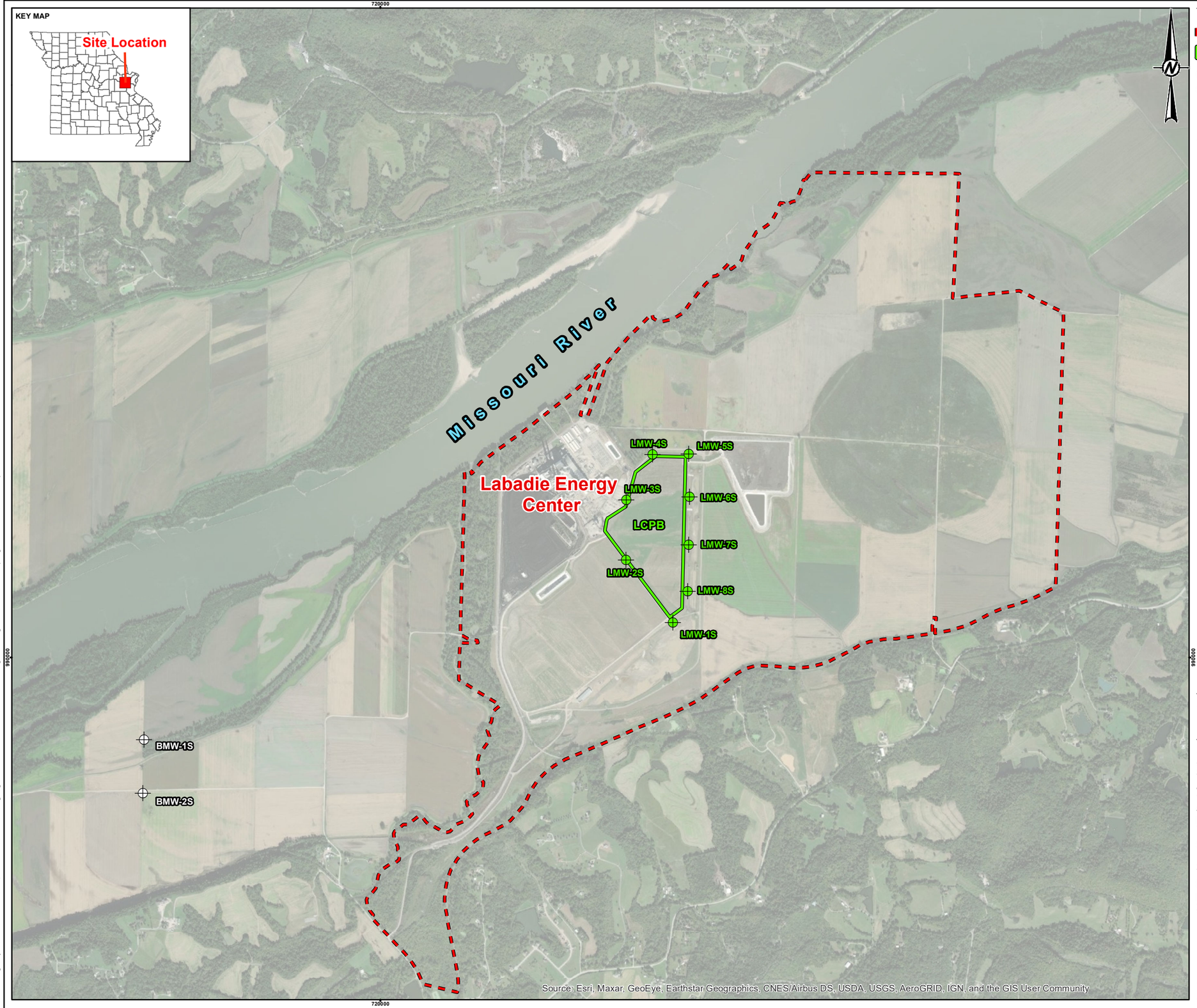
Table 5
November 2021 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

		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
November 2021 Detection Monitoring Event											
DATE	NA	11/1/2021	11/1/2021	11/4/2021	11/2/2021	11/3/2021	11/3/2021	11/2/2021	11/5/2021	11/5/2021	11/5/2021
pH	SU	6.68	6.97	6.93	9.48	7.21	6.97	6.80	6.75	6.73	7.12
BORON, TOTAL	µg/L	77.0 J	40.7 J	3,970	3,180	4,040	8,060	51.6 J	2,090	7,540	4,990
CALCIUM, TOTAL	µg/L	260,000	140,000	147,000	68,700	95,500 J	131,000	137,000	149,000	181,000	169,000
CHLORIDE, TOTAL	mg/L	13.7	1.7 J	2.5 J	17.8	20.7	22.8	3.6	3.6 J	18.6	12.0
FLUORIDE, TOTAL	mg/L	ND	0.14 J	0.18 J	0.15 J	0.15 J	0.25 J	0.19 J	0.25	0.19 J	0.43
SULFATE, TOTAL	mg/L	146	46.2	114	255	196	208	11.8	50.9	215	383
TOTAL DISSOLVED SOLIDS	mg/L	953 J	475 J	547	473	640	722	423	534	799	850

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

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

Figures



LEGEND

- Approximate Property Boundary
- LCPB - Fly Ash Surface Impoundment

Groundwater Monitoring Wells Used for LCPB CCR Rule Monitoring

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

0 1,000 2,000 3,000 4,000
Feet

NOTE(S)
1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

REFERENCE(S)
1.) ZAHNER AND ASSOCIATES, INC. 2016. LOT CONSOLIDATION PLAT OF "LABADIE ENERGY CENTER" - PREPARED FOR AMEREN MISSOURI. REVISED JUNE 15, 2016.
2.) COORDINATE SYSTEM: NAD 1983 STATEPLANE MISSOURI EAST FIPS 2,401 FEET.

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

PROJECT
GROUNDWATER MONITORING PROGRAM

TITLE
SITE LOCATION AERIAL MAP AND MONITORING WELL LOCATIONS

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-21
DESIGNED	JSI
PREPARED	BTT
REVIEWED	JSI
APPROVED	MNH

PROJECT NO.	CONTROL	FIGURE
153140603	1240	1

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

PATH: C:\Users\tgmorey\Golder Associates\153140601.02 - Ameren CCR GW Monitoring Program 2020 - AP\5 Technical Work\0001-LEC\5.5-Figures-Drawings\PRODUCTION\Other Maps\Figure 1 - 2021 LEC All Wells Map - LCPB.mxd PRINTED ON: 2022-01-20 AT: 8:36:47 AM

APPENDIX A

Laboratory Analytical Data

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

January 14, 2021

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

RE: Project: AMEREN LCPB
Pace Project No.: 60358560

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on January 07, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: AMEREN LCPB
Pace Project No.: 60358560

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN LCPB
Pace Project No.: 60358560

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60358560001	**L-LMW-1S**	Water	01/06/21 09:21	01/07/21 04:40
60358560002	**L-LMW-3S**	Water	01/04/21 13:22	01/07/21 04:40
60358560003	**L-LMW-5S**	Water	01/04/21 12:25	01/07/21 04:40
60358560004	**L-LMW-6S**	Water	01/05/21 11:43	01/07/21 04:40
60358560005	**L-LMW-7S**	Water	01/05/21 13:10	01/07/21 04:40
60358560006	**L-LMW-DUP-1**	Water	01/05/21 08:00	01/07/21 04:40
60358560007	**L-LMW-FB-1**	Water	01/04/21 12:40	01/07/21 04:40

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

SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60358560

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60358560001	**L-LMW-1S**	EPA 300.0	CRN2	1	PASI-K
60358560002	**L-LMW-3S**	EPA 300.0	CRN2	1	PASI-K
60358560003	**L-LMW-5S**	EPA 300.0	CRN2	3	PASI-K
60358560004	**L-LMW-6S**	EPA 300.0	CRN2	3	PASI-K
60358560005	**L-LMW-7S**	EPA 300.0	CRN2	1	PASI-K
60358560006	**L-LMW-DUP-1**	EPA 300.0	CRN2	3	PASI-K
60358560007	**L-LMW-FB-1**	EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-1S **Lab ID: 60358560001** Collected: 01/06/21 09:21 Received: 01/07/21 04:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.19J**	mg/L	0.20	0.085	1		01/11/21 22:49	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-3S **Lab ID: 60358560002** Collected: 01/04/21 13:22 Received: 01/07/21 04:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.34**	mg/L	0.20	0.085	1		01/11/21 23:05	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-5S **Lab ID: 60358560003** Collected: 01/04/21 12:25 Received: 01/07/21 04:40 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								
Chloride	**3.3**	mg/L	1.0	0.39	1		01/12/21 14:35	16887-00-6	B,M1
Fluoride	**0.26**	mg/L	0.20	0.075	1		01/12/21 14:35	16984-48-8	
Sulfate	**12.3**	mg/L	1.0	0.28	1		01/12/21 14:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-6S **Lab ID: 60358560004** Collected: 01/05/21 11:43 Received: 01/07/21 04:40 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								
Chloride	**8.0**	mg/L	1.0	0.36	1		01/11/21 23:21	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.085	1		01/11/21 23:21	16984-48-8	
Sulfate	**88.6**	mg/L	10.0	4.2	10		01/11/21 23:36	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
Pace Project No.: 60358560

Sample: L-LMW-7S **Lab ID: 60358560005** Collected: 01/05/21 13:10 Received: 01/07/21 04:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Fluoride	**0.19J**	mg/L	0.20	0.085	1		01/11/21 23:52	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-DUP-1 **Lab ID: 60358560006** Collected: 01/05/21 08:00 Received: 01/07/21 04:40 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								
Chloride	**8.0**	mg/L	1.0	0.36	1		01/12/21 00:39	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.085	1		01/12/21 00:39	16984-48-8	
Sulfate	**43.6**	mg/L	10.0	4.2	10		01/12/21 00:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60358560

Sample: L-LMW-FB-1 **Lab ID: 60358560007** Collected: 01/04/21 12:40 Received: 01/07/21 04:40 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								
Chloride	**<0.36**	mg/L	1.0	0.36	1		01/12/21 01:10	16887-00-6	
Fluoride	**<0.085**	mg/L	0.20	0.085	1		01/12/21 01:10	16984-48-8	
Sulfate	**<0.42**	mg/L	1.0	0.42	1		01/12/21 01:10	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
Pace Project No.: 60358560

QC Batch: 698603
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: 60358560001, 60358560002, 60358560004, 60358560005, 60358560006, 60358560007

METHOD BLANK: 2818358 Matrix: Water
Associated Lab Samples: 60358560001, 60358560002, 60358560004, 60358560005, 60358560006, 60358560007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.36	1.0	0.36	01/11/21 15:17	
Fluoride	mg/L	<0.085	0.20	0.085	01/11/21 15:17	
Sulfate	mg/L	<0.42	1.0	0.42	01/11/21 15:17	

METHOD BLANK: 2820471 Matrix: Water
Associated Lab Samples: 60358560001, 60358560002, 60358560004, 60358560005, 60358560006, 60358560007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.36	1.0	0.36	01/12/21 09:08	
Fluoride	mg/L	<0.085	0.20	0.085	01/12/21 09:08	
Sulfate	mg/L	<0.42	1.0	0.42	01/12/21 09:08	

LABORATORY CONTROL SAMPLE: 2818359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 2820472

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2818360 2818361

Parameter	Units	60358559001 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	6.2	6.3	82	84	80-120	1	15	
Fluoride	mg/L	0.21	2.5	2.5	2.2	2.3	81	83	80-120	2	15	
Sulfate	mg/L	83.1	50	50	135	134	105	102	80-120	1	15	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60358560

MATRIX SPIKE SAMPLE: 2818362

Parameter	Units	60358559002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	11.8	5	16.5	93	80-120	
Fluoride	mg/L	0.15J	2.5	2.1	79	80-120	M1
Sulfate	mg/L	150	50	199	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60358560

QC Batch: 698910
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: 60358560003

METHOD BLANK: 2819498 Matrix: Water
Associated Lab Samples: 60358560003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.59J	1.0	0.39	01/12/21 09:08	
Fluoride	mg/L	<0.075	0.20	0.075	01/12/21 09:08	
Sulfate	mg/L	<0.28	1.0	0.28	01/12/21 09:08	

METHOD BLANK: 2821241 Matrix: Water
Associated Lab Samples: 60358560003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	01/13/21 08:59	
Fluoride	mg/L	<0.075	0.20	0.075	01/13/21 08:59	
Sulfate	mg/L	<0.28	1.0	0.28	01/13/21 08:59	

LABORATORY CONTROL SAMPLE: 2819499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.4	96	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

LABORATORY CONTROL SAMPLE: 2821242

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.4	107	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2819500 2819501

Parameter	Units	60358560003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.3	5	5	7.3	7.4	79	80	80-120	1	15	M1
Fluoride	mg/L	0.26	2.5	2.5	2.3	2.4	82	84	80-120	2	15	
Sulfate	mg/L	12.3	5	5	16.7	16.7	88	88	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60358560

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2819502 2819503

Parameter	Units	60358561003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	15.7	5	5	20.7	20.2	99	90	80-120	2	15	E
Fluoride	mg/L	0.29	2.5	2.5	2.1	1.8	72	62	80-120	12	15	M1
Sulfate	mg/L	710	250	250	870	897	64	75	80-120	3	15	M1

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN LCPB
Pace Project No.: 60358560

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LCPB
Pace Project No.: 60358560

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60358560001	**L-LMW-1S**	EPA 300.0	698603		
60358560002	**L-LMW-3S**	EPA 300.0	698603		
60358560003	**L-LMW-5S**	EPA 300.0	698910		
60358560004	**L-LMW-6S**	EPA 300.0	698603		
60358560005	**L-LMW-7S**	EPA 300.0	698603		
60358560006	**L-LMW-DUP-1**	EPA 300.0	698603		
60358560007	**L-LMW-FB-1**	EPA 300.0	698603		

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Sample Condition Upon Receipt

WO# : 60358560

60358560

Client Name: Golder Associates

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

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

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

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

Thermometer Used: T2611 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 15,17 **Corr. Factor** -0.1 **Corrected** 13,15

Date and initials of person examining contents: 01072 MLK

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:

REVIEWED
By jchurch at 3:59 pm, 1/7/21

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren LCPB
Project Number:	153140602

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES ~~GROUND WATER~~ DRINKING WATER

UST RCRA OTHER _____

Site Location STATE: MO

Section D Required Client Information

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Boron N	200.7 Calcium N	Chloride N	Fluoride N	Sulfate N	TDS N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	L-LMW-1S	WT	G			1/6/21	0921		1	1												/				60358560
2	L-LMW-3S	WT	G			1/4/21	1322		1	1												/				
3	L-LMW-5S	WT	G			1/4/21	1225		1	1												/	/	/		
4	L-LMW-6S	WT	G			1/5/21	1143		1	1												/	/	/		
5	L-LMW-7S	WT	G			1/5/21	1310		1	1												/				
6	L-LMW-DUP-1	WT	G			1/5/21	—		1	1												/	/	/		
7	L-LMW-FB-1	WT	G			1/4/21	1240		1	1												/	/	/		
8	L-LMW-MS-1	WT	G			1/4/21	1225		1	1												/	/	/		MS/MSD taken @
9	L-LMW-MSD-1	WT	G				1225		1	1												/	/	/		LMW-5S
10		WT	G																							
11		WT	G																							
12		WT	G																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[illegible]/Golder	1/6/21	1750	[illegible]/Pace	1/07/21	0440	1.3	Y	Y	Y
							1.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: [illegible]

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 01/06/21

MEMORANDUM

DATE January 27, 2021 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, LABADIE ENERGY CENTER – LCPB – VERIFICATION SAMPLING - DATA PACKAGE 60358560

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

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates Inc.
Project Manager: J. Ingram
Project Name: Ameren - LEC - LCPB
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 01/27/2021

Laboratory: Pace Analytical Services, LLC
SDG #: 60358560
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-5S, L-LMW-6S, L-LMW-7S, 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			01/04/2021 - 01/06/2021
b) Sampling team indicated?	x			BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?				
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	x			See Notes
b) Were analytes detected in the field blank(s)?		x		L-LMW-FB-1 @ L-LMW-5S
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		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?		x		
d) Were lab dup. precision criteria met (note RPD)?			x	

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

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

Comments/Notes:

Sulfate was diluted in sample L-LMW-6S and L-LMW-DUP-1, no qualification necessary.

Method Blanks:

2819498: Chloride (0.59J), associated with sample -0003. Sample result > RL, no qualification necessary.

MS/MSD:

2818362: MS % recovery low for Fluoride. MS performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

2819500/2819501: MS % recovery low for Chloride, associated with sample 60358560003.

2819502/2819503: MS/MSD % recovery low for Fluoride and Sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

DUP:

L-LMW-DUP-1: RPD exceeds limit (20%) for Sulfate (68.1%).

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-5S	Chloride	3.3	J-	MS % recovery outside control limits
L-LMW-6S	Sulfate	88.6	J	DUP RPD exceeds limit
L-LMW-DUP-1	"	43.6	J	"

Signature: _____ Ann Muhlfarth _____ Date: 01/27/2021

Pace Analytical Services, LLC
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March 11, 2021

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

RE: Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on February 19, 2021. 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

L-BMW-1S and L-BMW-2S moved from SDG 60361519 to 60363499

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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SAMPLE SUMMARY

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60361519003	**L-BMW-1S**	Water	02/18/21 11:25	02/19/21 03:53
60361519004	**L-BMW-2S**	Water	02/18/21 13:05	02/19/21 03:53

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60361519003	**L-BMW-1S**	EPA 200.7	HKC	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JDE	1	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	MAP	1	PASI-K
		SM 4500-S-2 D	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60361519004	**L-BMW-2S**	EPA 200.7	HKC	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JDE	1	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	MAP	1	PASI-K
		SM 4500-S-2 D	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Sample: L-BMW-1S **Lab ID: 60361519003** Collected: 02/18/21 11:25 Received: 02/19/21 03:53 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								
Barium	**347**	ug/L	5.0	1.8	1	02/19/21 13:31	02/22/21 13:26	7440-39-3	
Beryllium	**<0.39**	ug/L	1.0	0.39	1	02/19/21 13:31	02/22/21 13:26	7440-41-7	
Boron	**97.3J**	ug/L	100	8.6	1	02/19/21 13:31	02/22/21 13:26	7440-42-8	
Calcium	**212000**	ug/L	200	75.4	1	02/19/21 13:31	02/22/21 13:26	7440-70-2	
Cobalt	**1.9J**	ug/L	5.0	0.95	1	02/19/21 13:31	02/22/21 13:26	7440-48-4	
Iron	**26200**	ug/L	50.0	21.4	1	02/19/21 13:31	02/22/21 13:26	7439-89-6	
Lead	**<3.8**	ug/L	10.0	3.8	1	02/19/21 13:31	02/22/21 13:26	7439-92-1	
Lithium	**18.0**	ug/L	10.0	7.7	1	02/19/21 13:31	02/22/21 13:26	7439-93-2	
Magnesium	**43200**	ug/L	50.0	31.4	1	02/19/21 13:31	02/22/21 13:26	7439-95-4	
Manganese	**2570**	ug/L	5.0	0.74	1	02/19/21 13:31	02/22/21 13:26	7439-96-5	
Molybdenum	**<2.2**	ug/L	20.0	2.2	1	02/19/21 13:31	02/22/21 13:26	7439-98-7	
Potassium	**5560**	ug/L	500	146	1	02/19/21 13:31	02/22/21 13:26	7440-09-7	
Sodium	**15000**	ug/L	500	254	1	02/19/21 13:31	02/22/21 13:26	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Antimony	**<0.10**	ug/L	1.0	0.10	1	02/19/21 13:31	02/22/21 14:36	7440-36-0	
Arsenic	**25.5**	ug/L	1.0	0.11	1	02/19/21 13:31	02/22/21 14:36	7440-38-2	
Cadmium	**<0.062**	ug/L	0.50	0.062	1	02/19/21 13:31	02/22/21 14:36	7440-43-9	
Chromium	**<0.23**	ug/L	1.0	0.23	1	02/19/21 13:31	02/22/21 14:36	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	02/19/21 13:31	02/22/21 14:36	7782-49-2	
Thallium	**<0.094**	ug/L	1.0	0.094	1	02/19/21 13:31	02/22/21 14:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Kansas City								
Mercury	**<0.096**	ug/L	0.20	0.096	1	02/23/21 08:45	02/23/21 12:39	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**682**	mg/L	20.0	7.5	1		02/23/21 15:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**792**	mg/L	10.0	10.0	1		02/23/21 09:12		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4 Pace Analytical Services - Kansas City								
Iron, Ferric	**25.9**	mg/L	0.050		1		02/24/21 12:58	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4 Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.23**	mg/L	0.20	0.048	1		02/22/21 09:05		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Sample: L-BMW-1S **Lab ID: 60361519003** Collected: 02/18/21 11:25 Received: 02/19/21 03:53 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.034J**	mg/L	0.050	0.026	1		02/20/21 09:14	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**5.1**	mg/L	1.0	0.39	1		02/22/21 19:16	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		02/22/21 19:16	16984-48-8	
Sulfate	**70.4**	mg/L	5.0	2.1	5		02/22/21 19:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Sample: L-BMW-2S **Lab ID: 60361519004** Collected: 02/18/21 13:05 Received: 02/19/21 03:53 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								
Barium	**237**	ug/L	5.0	1.8	1	02/19/21 13:31	02/22/21 13:29	7440-39-3	
Beryllium	**<0.39**	ug/L	1.0	0.39	1	02/19/21 13:31	02/22/21 13:29	7440-41-7	
Boron	**42.0J**	ug/L	100	8.6	1	02/19/21 13:31	02/22/21 13:29	7440-42-8	
Calcium	**133000**	ug/L	200	75.4	1	02/19/21 13:31	02/22/21 13:29	7440-70-2	
Cobalt	**<0.95**	ug/L	5.0	0.95	1	02/19/21 13:31	02/22/21 13:29	7440-48-4	
Iron	**30.9J**	ug/L	50.0	21.4	1	02/19/21 13:31	02/23/21 11:37	7439-89-6	
Lead	**<3.8**	ug/L	10.0	3.8	1	02/19/21 13:31	02/22/21 13:29	7439-92-1	
Lithium	**13.0**	ug/L	10.0	7.7	1	02/19/21 13:31	02/22/21 13:29	7439-93-2	
Magnesium	**20200**	ug/L	50.0	31.4	1	02/19/21 13:31	02/22/21 13:29	7439-95-4	
Manganese	**1.1J**	ug/L	5.0	0.74	1	02/19/21 13:31	02/22/21 13:29	7439-96-5	
Molybdenum	**<2.2**	ug/L	20.0	2.2	1	02/19/21 13:31	02/22/21 13:29	7439-98-7	
Potassium	**5560**	ug/L	500	146	1	02/19/21 13:31	02/22/21 13:29	7440-09-7	
Sodium	**4060**	ug/L	500	254	1	02/19/21 13:31	02/22/21 13:29	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Antimony	**0.24J**	ug/L	1.0	0.10	1	02/19/21 13:31	02/22/21 14:38	7440-36-0	
Arsenic	**0.54J**	ug/L	1.0	0.11	1	02/19/21 13:31	02/22/21 14:38	7440-38-2	
Cadmium	**<0.062**	ug/L	0.50	0.062	1	02/19/21 13:31	02/22/21 14:38	7440-43-9	
Chromium	**<0.23**	ug/L	1.0	0.23	1	02/19/21 13:31	02/22/21 14:38	7440-47-3	
Selenium	**2.4**	ug/L	1.0	0.18	1	02/19/21 13:31	02/22/21 14:38	7782-49-2	
Thallium	**<0.094**	ug/L	1.0	0.094	1	02/19/21 13:31	02/22/21 14:38	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Kansas City								
Mercury	**<0.096**	ug/L	0.20	0.096	1	02/23/21 08:45	02/23/21 12:46	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**365**	mg/L	20.0	7.5	1		02/23/21 15:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**483**	mg/L	10.0	10.0	1		02/23/21 09:12		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4 Pace Analytical Services - Kansas City								
Iron, Ferric	**0.017J**	mg/L	0.050		1		02/24/21 12:58	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4 Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.048**	mg/L	0.20	0.048	1		02/22/21 09:08		H6

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Sample: L-BMW-2S **Lab ID: 60361519004** Collected: 02/18/21 13:05 Received: 02/19/21 03:53 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.028J**	mg/L	0.050	0.026	1		02/20/21 09:14	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**4.0**	mg/L	1.0	0.39	1		02/22/21 19:45	16887-00-6	
Fluoride	**0.14J**	mg/L	0.20	0.086	1		02/22/21 19:45	16984-48-8	
Sulfate	**60.6**	mg/L	5.0	2.1	5		02/22/21 20:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705266
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2840422 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.096	0.20	0.096	02/23/21 12:21	

LABORATORY CONTROL SAMPLE: 2840423

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2840424 2840425

Parameter	Units	60361519003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.096	5	5	4.8	4.9	96	97	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705001
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: 60361519003, 60361519004

METHOD BLANK: 2839697 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	02/22/21 13:11	
Beryllium	ug/L	<0.39	1.0	0.39	02/22/21 13:11	
Boron	ug/L	<8.6	100	8.6	02/22/21 13:11	
Calcium	ug/L	<75.4	200	75.4	02/22/21 13:11	
Cobalt	ug/L	<0.95	5.0	0.95	02/22/21 13:11	
Iron	ug/L	<21.4	50.0	21.4	02/22/21 13:11	
Lead	ug/L	<3.8	10.0	3.8	02/22/21 13:11	
Lithium	ug/L	<7.7	10.0	7.7	02/22/21 13:11	
Magnesium	ug/L	<31.4	50.0	31.4	02/22/21 13:11	
Manganese	ug/L	<0.74	5.0	0.74	02/22/21 13:11	
Molybdenum	ug/L	<2.2	20.0	2.2	02/22/21 13:11	
Potassium	ug/L	<146	500	146	02/22/21 13:11	
Sodium	ug/L	<254	500	254	02/22/21 13:11	

LABORATORY CONTROL SAMPLE: 2839698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	974	97	85-115	
Beryllium	ug/L	1000	980	98	85-115	
Boron	ug/L	1000	976	98	85-115	
Calcium	ug/L	10000	9950	100	85-115	
Cobalt	ug/L	1000	1010	101	85-115	
Iron	ug/L	10000	9930	99	85-115	
Lead	ug/L	1000	1010	101	85-115	
Lithium	ug/L	1000	984	98	85-115	
Magnesium	ug/L	10000	9950	100	85-115	
Manganese	ug/L	1000	964	96	85-115	
Molybdenum	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9880	99	85-115	
Sodium	ug/L	10000	9810	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2839699 2839700

Parameter	Units	60361519001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	1080	1000	1000	2080	2100	100	102	70-130	1	20	
Beryllium	ug/L	<0.39	1000	1000	997	1020	100	102	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2839699 2839700

Parameter	Units	60361519001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	78.1J	1000	1000	1080	1090	101	101	70-130	0	20	
Calcium	ug/L	133000	10000	10000	145000	146000	122	125	70-130	0	20	
Cobalt	ug/L	<0.95	1000	1000	1000	1010	100	101	70-130	1	20	
Iron	ug/L	10900	10000	10000	20700	20600	98	98	70-130	0	20	
Lead	ug/L	<3.8	1000	1000	988	999	99	100	70-130	1	20	
Lithium	ug/L	27.8	1000	1000	1030	1030	100	100	70-130	0	20	
Magnesium	ug/L	30000	10000	10000	40300	40000	104	100	70-130	1	20	
Manganese	ug/L	623	1000	1000	1600	1590	97	96	70-130	1	20	
Molybdenum	ug/L	<2.2	1000	1000	1040	1040	103	104	70-130	1	20	
Potassium	ug/L	4480	10000	10000	14800	15100	103	106	70-130	2	20	
Sodium	ug/L	10100	10000	10000	20000	20000	99	99	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705002
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2839701 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.10	1.0	0.10	02/22/21 14:29	
Arsenic	ug/L	<0.11	1.0	0.11	02/22/21 14:29	
Cadmium	ug/L	<0.062	0.50	0.062	02/22/21 14:29	
Chromium	ug/L	<0.23	1.0	0.23	02/22/21 14:29	
Selenium	ug/L	<0.18	1.0	0.18	02/22/21 14:29	
Thallium	ug/L	<0.094	1.0	0.094	02/22/21 14:29	

LABORATORY CONTROL SAMPLE: 2839702

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.5	99	85-115	
Arsenic	ug/L	40	41.1	103	85-115	
Cadmium	ug/L	40	40.3	101	85-115	
Chromium	ug/L	40	42.6	106	85-115	
Selenium	ug/L	40	40.8	102	85-115	
Thallium	ug/L	40	39.0	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2839703 2839704

Parameter	Units	60361519002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.10	40	40	38.8	38.7	97	97	70-130	0	20	
Arsenic	ug/L	35.7	40	40	77.2	77.1	104	104	70-130	0	20	
Cadmium	ug/L	<0.062	40	40	39.1	38.9	98	97	70-130	1	20	
Chromium	ug/L	0.34J	40	40	40.8	40.6	101	101	70-130	1	20	
Selenium	ug/L	<0.18	40	40	39.3	38.8	98	97	70-130	1	20	
Thallium	ug/L	<0.094	40	40	40.6	39.8	101	99	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705268
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2840426 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.5	20.0	7.5	02/23/21 15:15	

LABORATORY CONTROL SAMPLE: 2840427

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	524	105	90-110	

SAMPLE DUPLICATE: 2840428

Parameter	Units	60361519001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	440	430	2	10	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705155
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2840218 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	02/23/21 09:10	

LABORATORY CONTROL SAMPLE: 2840219

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

SAMPLE DUPLICATE: 2840220

Parameter	Units	60361519001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	501	524	4	10	

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REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705068
QC Batch Method: SM 3500-Fe B#4
Analysis Method: SM 3500-Fe B#4
Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2839984 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.048	0.20	0.048	02/22/21 09:02	H6

LABORATORY CONTROL SAMPLE: 2839985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	2	2.1	103	90-110	H6

SAMPLE DUPLICATE: 2839986

Parameter	Units	60361508014 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	<0.20	0.18J		20	H6

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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 LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 705038
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60361519003, 60361519004

METHOD BLANK: 2839847 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.026	0.050	0.026	02/20/21 09:07	

LABORATORY CONTROL SAMPLE: 2839848

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.50	101	80-120	

MATRIX SPIKE SAMPLE: 2839849

Parameter	Units	60361426001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.43	0.5	0.91	97	75-125	

SAMPLE DUPLICATE: 2839850

Parameter	Units	60361519002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.040J	0.041J		20	

SAMPLE DUPLICATE: 2839851

Parameter	Units	60361508016 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	0.031J		20	

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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 LABADIE LCPB
Pace Project No.: 60363499

QC Batch: 704993
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: 60361519003, 60361519004

METHOD BLANK: 2839665 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	02/22/21 12:03	
Fluoride	mg/L	<0.086	0.20	0.086	02/22/21 12:03	
Sulfate	mg/L	<0.42	1.0	0.42	02/22/21 12:03	

METHOD BLANK: 2840545 Matrix: Water
Associated Lab Samples: 60361519003, 60361519004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	02/23/21 09:13	
Fluoride	mg/L	<0.086	0.20	0.086	02/23/21 09:13	
Sulfate	mg/L	<0.42	1.0	0.42	02/23/21 09:13	

LABORATORY CONTROL SAMPLE: 2839666

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2839667 2839668

Parameter	Units	60361288001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	197	100	100	299	301	102	103	80-120	1	15	
Fluoride	mg/L	0.82	2.5	2.5	2.8	2.9	78	81	80-120	3	15	M1
Sulfate	mg/L	782	500	500	1260	1260	96	96	80-120	0	15	

SAMPLE DUPLICATE: 2839669

Parameter	Units	60361288001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	197	196	1	15	
Fluoride	mg/L	0.82	0.84	2	15	
Sulfate	mg/L	782	755	4	15	

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REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LABADIE LCPB
Pace Project No.: 60363499

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60361519003	**L-BMW-1S**	EPA 200.7	705001	EPA 200.7	705058
60361519004	**L-BMW-2S**	EPA 200.7	705001	EPA 200.7	705058
60361519003	**L-BMW-1S**	EPA 200.8	705002	EPA 200.8	705059
60361519004	**L-BMW-2S**	EPA 200.8	705002	EPA 200.8	705059
60361519003	**L-BMW-1S**	EPA 7470	705266	EPA 7470	705327
60361519004	**L-BMW-2S**	EPA 7470	705266	EPA 7470	705327
60361519003	**L-BMW-1S**	SM 2320B	705268		
60361519004	**L-BMW-2S**	SM 2320B	705268		
60361519003	**L-BMW-1S**	SM 2540C	705155		
60361519004	**L-BMW-2S**	SM 2540C	705155		
60361519003	**L-BMW-1S**	SM 3500-Fe B#4	705571		
60361519004	**L-BMW-2S**	SM 3500-Fe B#4	705571		
60361519003	**L-BMW-1S**	SM 3500-Fe B#4	705068		
60361519004	**L-BMW-2S**	SM 3500-Fe B#4	705068		
60361519003	**L-BMW-1S**	SM 4500-S-2 D	705038		
60361519004	**L-BMW-2S**	SM 4500-S-2 D	705038		
60361519003	**L-BMW-1S**	EPA 300.0	704993		
60361519004	**L-BMW-2S**	EPA 300.0	704993		

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Sample Condition Upon Receipt

WO#: 60361519

60361519

Client Name: Golder Associates

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

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

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

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

Thermometer Used: T295 **Type of Ice:** Wet Blue None Cooler #1 Cooler #2

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

Temperature should be above freezing to 6°C 8.9 +0.2 9.1

Date and initials of person examining contents: 2/19/21 SP

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	Fe+2
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# Le223173 Le323222	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

REVIEWED
By jchurch at 9:49 am, 2/19/21

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #1
Project Name:	Ameren Labadie Energy Center LCPA
Project Number:	153140602.0001A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N	N	N	N	N	N				LEU3a1519
1	L-UMW-1D	WT	G																												
2	L-UMW-2D	WT	G																												
3	L-UMW-3D	WT	G																												
4	L-UMW-4D	WT	G																												
5	L-UMW-5D	WT	G																												
6	L-UMW-6D	WT	G																												
7	L-UMW-7D	WT	G																												
8	L-UMW-8D	WT	G																												
9	L-UMW-9D	WT	G																												
10	L-BMW-1D	WT	G			2-18-21	1048		6	2	3					1		/	/	/	/	/	/	/	/	/	/				
11	L-BMW-2D	WT	G			⊥	~~1225~~ 1226		⊥	⊥	⊥					1		⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥				
12	L-UMW-DUP-1	WT	G																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B		2/18/21	1450	Angela Inc	2/18	1500				
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl	Angela M	2/18	1500	E Rhodes/Pace	2/18/21	0353	1.1	Y	Y	Y
				E Rhodes/Pace	2/19/21	0353	9.1	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/18/21

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

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

Pace Analytical
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Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #1
Project Name:	Ameren Labadie Energy Center LCPA-CA
Project Number:	153140602.0001A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Requested Analysis Filtered (Y/N)																	Y/N	N	N	N	N	N	N	N	N	N	N				
1	L-UMW-1D	WT	G																													
2	L-UMW-2D	WT	G																													
3	L-UMW-3D	WT	G																													
4	L-UMW-4D	WT	G																													
5	L-UMW-5D	WT	G																													
6	L-UMW-6D	WT	G																													
7	L-UMW-7D	WT	G																													
8	L-UMW-8D	WT	G																													
9	L-UMW-9D	WT	G																													
10	L-BMW-1D 1S	WT	G			2-18-21	1125		6	2		3				1		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
11	L-BMW-2D 2S	WT	G			〃	1305		1	1		1				1		1	1	1	1	1	1	1	1	1	1	1				
12	L-UMW-DUP-1	WT	G																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] Golder	2/18/21	1450	Angela Mena	2/18	1500				
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl	[signature]	2/18/21		Schnieder/Face	2/19/21	0353	1.1	Y	Y	Y
							9.1	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/18/21

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

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

MEMORANDUM

DATE March 16, 2021 **Project No.** 153140603

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, LABADIE ENERGY CENTER – LCPB – BACKGROUND SAMPLES - DATA PACKAGE 60363499

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

- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When a compound was analyzed outside of hold time the results were recorded at the detection value and qualified as estimates (J).

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren - LEC - LCPB
Project Number: 153140603
Reviewer: A. Muehlfarth
Validation Date: 03/16/2021

Laboratory: Pace Analytical Services, LLC
SDG #: 60363499
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals); EPA 7470 (Mercury); SM2320B (Alkalinity); SM2540C (TDS); SM 3500-FE B#4 (Ferric/Ferrous Iron); SM 4500-S-2-D (Total Sulfide); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names 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			2/18/2021
b) Sampling team indicated?	x			EMS
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?		x		
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	☒	☐	
b) Were analytes detected in the field blank(s)?	☐	☐	☒	
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)?	☐	☒	☐	
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)?	☒	☐	☐	Max RPD: 4% (<10%)

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?	☒	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
c) Were MS/MSD precision criteria met?	☒	☐	☐	

Comments/Notes:

Ferrous Iron analyzed outside of hold time in all samples.

Dilutions: Sulfate was diluted in all samples, no qualification necessary.

MS/MSD:

2839667/2839668: MS % recovery low for Fluoride. MS/MSD performed on an unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-BMW-1S	Ferrous Iron	0.23	J	Analyzed outside of hold time
L-BMW-2S	"	0.048	UJ	Analyzed outside of hold time, non-detect

Signature: Ann Muehlfarth Date: 03/16/2021

Pace Analytical Services, LLC
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June 02, 2021

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

RE: Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between April 17, 2021 and April 24, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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SAMPLE SUMMARY

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60366969001	**L-LMW-6S**	Water	04/16/21 09:45	04/17/21 03:30
60366969002	**L-LMW-5S**	Water	04/19/21 16:15	04/21/21 03:49
60366969003	**L-LMW-3S**	Water	04/20/21 11:40	04/21/21 03:49
60366969004	**L-LMW-DUP-1**	Water	04/20/21 00:00	04/21/21 03:49
60366969005	**L-LMW-FB-1**	Water	04/19/21 16:30	04/21/21 03:49
60366962014	**L-LMW-1S**	Water	04/15/21 13:19	04/17/21 03:35
60366962015	**L-LMW-7S**	Water	04/15/21 15:13	04/17/21 03:35
60366962016	**L-LMW-8S**	Water	04/15/21 15:32	04/17/21 03:35
60366962032	**L-LMW-4S**	Water	04/20/21 14:00	04/21/21 03:49
60366962033	**L-LMW-2S**	Water	04/21/21 11:02	04/24/21 03:10

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SAMPLE ANALYTE COUNT

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60366969001	L-LMW-6S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	VRP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366969002	L-LMW-5S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366969003	L-LMW-3S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366969004	L-LMW-DUP-1	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2, VRP	3	PASI-K
60366969005	L-LMW-FB-1	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366962014	L-LMW-1S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	AJS	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366962015	L-LMW-7S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	AJS	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366962016	L-LMW-8S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	AJS	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366962032	L-LMW-4S	EPA 200.7	JLH	7	PASI-K
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60366962033	L-LMW-2S	EPA 200.7	JLH	7	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	MAP	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-6S **Lab ID: 60366969001** Collected: 04/16/21 09:45 Received: 04/17/21 03:30 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	**4420**	ug/L	100	8.6	1	04/22/21 11:30	04/30/21 19:00	7440-42-8	
Calcium	**120000**	ug/L	200	75.4	1	04/22/21 11:30	04/30/21 19:00	7440-70-2	M1
Iron	**16600**	ug/L	50.0	21.4	1	04/22/21 11:30	04/30/21 19:00	7439-89-6	
Magnesium	**20800**	ug/L	50.0	31.4	1	04/22/21 11:30	04/30/21 19:00	7439-95-4	
Manganese	**1480**	ug/L	5.0	0.74	1	04/22/21 11:30	04/30/21 19:00	7439-96-5	
Potassium	**5840**	ug/L	500	146	1	04/22/21 11:30	04/30/21 19:00	7440-09-7	
Sodium	**31200**	ug/L	500	254	1	04/22/21 11:30	04/30/21 19:00	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**371**	mg/L	20.0	7.5	1		04/27/21 10:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**607**	mg/L	10.0	10.0	1		04/23/21 15:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**10.1**	mg/L	1.0	0.39	1		04/25/21 10:19	16887-00-6	M1,R1
Fluoride	**0.30**	mg/L	0.20	0.086	1		04/25/21 10:19	16984-48-8	M1,R1
Sulfate	**83.9**	mg/L	10.0	4.2	10		04/25/21 11:22	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-5S **Lab ID: 60366969002** Collected: 04/19/21 16:15 Received: 04/21/21 03:49 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	**63.1J**	ug/L	100	8.6	1	04/27/21 14:38	05/06/21 21:36	7440-42-8	
Calcium	**143000**	ug/L	200	75.4	1	04/27/21 14:38	05/06/21 21:36	7440-70-2	
Iron	**267**	ug/L	50.0	21.4	1	04/27/21 14:38	05/06/21 21:36	7439-89-6	
Magnesium	**13900**	ug/L	50.0	31.4	1	04/27/21 14:38	05/06/21 21:36	7439-95-4	
Manganese	**33.7**	ug/L	5.0	0.74	1	04/27/21 14:38	05/06/21 21:36	7439-96-5	
Potassium	**3440**	ug/L	500	146	1	04/27/21 14:38	05/06/21 21:36	7440-09-7	
Sodium	**13800**	ug/L	500	254	1	04/27/21 14:38	05/06/21 21:36	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**437**	mg/L	20.0	7.5	1		04/30/21 17:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**496**	mg/L	10.0	10.0	1		04/26/21 11:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.4**	mg/L	1.0	0.39	1		04/26/21 23:53	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.086	1		04/26/21 23:53	16984-48-8	
Sulfate	**11.6**	mg/L	1.0	0.42	1		04/26/21 23:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-3S **Lab ID: 60366969003** Collected: 04/20/21 11:40 Received: 04/21/21 03:49 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	**3940**	ug/L	100	8.6	1	04/27/21 14:38	05/06/21 21:39	7440-42-8	
Calcium	**119000**	ug/L	200	75.4	1	04/27/21 14:38	05/06/21 21:39	7440-70-2	
Iron	**7780**	ug/L	50.0	21.4	1	04/27/21 14:38	05/06/21 21:39	7439-89-6	
Magnesium	**10800**	ug/L	50.0	31.4	1	04/27/21 14:38	05/06/21 21:39	7439-95-4	
Manganese	**792**	ug/L	5.0	0.74	1	04/27/21 14:38	05/06/21 21:39	7439-96-5	
Potassium	**9900**	ug/L	500	146	1	04/27/21 14:38	05/06/21 21:39	7440-09-7	
Sodium	**107000**	ug/L	500	254	1	04/27/21 14:38	05/06/21 21:39	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**336**	mg/L	20.0	7.5	1		05/03/21 20:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**358**	mg/L	5.0	5.0	1		04/26/21 11:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.8**	mg/L	5.0	1.9	5		04/27/21 00:22	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.086	1		04/27/21 00:07	16984-48-8	
Sulfate	**192**	mg/L	20.0	8.4	20		04/27/21 01:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-DUP-1 **Lab ID: 60366969004** Collected: 04/20/21 00:00 Received: 04/21/21 03:49 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	**4020**	ug/L	100	8.6	1	04/27/21 14:38	05/06/21 21:41	7440-42-8	
Calcium	**123000**	ug/L	200	75.4	1	04/27/21 14:38	05/06/21 21:41	7440-70-2	
Iron	**8130**	ug/L	50.0	21.4	1	04/27/21 14:38	05/06/21 21:41	7439-89-6	
Magnesium	**11200**	ug/L	50.0	31.4	1	04/27/21 14:38	05/06/21 21:41	7439-95-4	
Manganese	**813**	ug/L	5.0	0.74	1	04/27/21 14:38	05/06/21 21:41	7439-96-5	
Potassium	**10000**	ug/L	500	146	1	04/27/21 14:38	05/06/21 21:41	7440-09-7	
Sodium	**109000**	ug/L	500	254	1	04/27/21 14:38	05/06/21 21:41	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**346**	mg/L	20.0	7.5	1		05/03/21 20:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**370**	mg/L	5.0	5.0	1		04/26/21 11:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.5**	mg/L	2.0	0.78	2		04/27/21 13:13	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.086	1		04/27/21 01:19	16984-48-8	
Sulfate	**190**	mg/L	20.0	8.4	20		04/27/21 01:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-FB-1 **Lab ID: 60366969005** Collected: 04/19/21 16:30 Received: 04/21/21 03:49 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	**<8.6**	ug/L	100	8.6	1	04/27/21 14:38	05/06/21 21:44	7440-42-8	
Calcium	**<75.4**	ug/L	200	75.4	1	04/27/21 14:38	05/06/21 21:44	7440-70-2	
Iron	**<21.4**	ug/L	50.0	21.4	1	04/27/21 14:38	05/06/21 21:44	7439-89-6	
Magnesium	**<31.4**	ug/L	50.0	31.4	1	04/27/21 14:38	05/06/21 21:44	7439-95-4	
Manganese	**<0.74**	ug/L	5.0	0.74	1	04/27/21 14:38	05/06/21 21:44	7439-96-5	
Potassium	**<146**	ug/L	500	146	1	04/27/21 14:38	05/06/21 21:44	7440-09-7	
Sodium	**<254**	ug/L	500	254	1	04/27/21 14:38	05/06/21 21:44	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<7.5**	mg/L	20.0	7.5	1		04/30/21 18:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**34.0**	mg/L	5.0	5.0	1		04/26/21 11:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/27/21 01:48	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		04/27/21 01:48	16984-48-8	
Sulfate	**<0.42**	mg/L	1.0	0.42	1		04/27/21 01:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-1S **Lab ID: 60366962014** Collected: 04/15/21 13:19 Received: 04/17/21 03:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**687**	ug/L	100	8.6	1	04/28/21 14:32	05/13/21 14:09	7440-42-8	
Calcium	**129000**	ug/L	200	75.4	1	04/28/21 14:32	05/13/21 14:09	7440-70-2	
Iron	**6100**	ug/L	50.0	21.4	1	04/28/21 14:32	05/13/21 14:09	7439-89-6	
Magnesium	**23400**	ug/L	50.0	31.4	1	04/28/21 14:32	05/13/21 14:09	7439-95-4	
Manganese	**1200**	ug/L	5.0	0.74	1	04/28/21 14:32	05/13/21 14:09	7439-96-5	
Potassium	**4090**	ug/L	500	146	1	04/28/21 14:32	05/13/21 14:09	7440-09-7	
Sodium	**7580**	ug/L	500	254	1	04/28/21 14:32	05/13/21 14:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**370**	mg/L	20.0	7.5	1		04/27/21 10:30		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**542**	mg/L	10.0	10.0	1		04/22/21 13:02		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1.9**	mg/L	1.0	0.39	1		04/27/21 17:22	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.086	1		04/27/21 17:22	16984-48-8	
Sulfate	**53.7**	mg/L	5.0	2.1	5		04/28/21 15:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-7S **Lab ID: 60366962015** Collected: 04/15/21 15:13 Received: 04/17/21 03:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**12800**	ug/L	100	8.6	1	04/28/21 14:32	05/13/21 14:11	7440-42-8	
Calcium	**128000**	ug/L	200	75.4	1	04/28/21 14:32	05/13/21 14:11	7440-70-2	
Iron	**5110**	ug/L	50.0	21.4	1	04/28/21 14:32	05/13/21 14:11	7439-89-6	
Magnesium	**30300**	ug/L	50.0	31.4	1	04/28/21 14:32	05/13/21 14:11	7439-95-4	
Manganese	**1390**	ug/L	5.0	0.74	1	04/28/21 14:32	05/13/21 14:11	7439-96-5	
Potassium	**6680**	ug/L	500	146	1	04/28/21 14:32	05/13/21 14:11	7440-09-7	
Sodium	**72600**	ug/L	500	254	1	04/28/21 14:32	05/13/21 14:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**277**	mg/L	20.0	7.5	1		04/27/21 10:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**812**	mg/L	10.0	10.0	1		04/22/21 13:02		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.8**	mg/L	2.0	0.78	2		04/28/21 15:40	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		04/27/21 18:20	16984-48-8	
Sulfate	**294**	mg/L	20.0	8.4	20		04/27/21 19:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-8S **Lab ID: 60366962016** Collected: 04/15/21 15:32 Received: 04/17/21 03:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**8550**	ug/L	2000	171	20	04/28/21 14:32	05/13/21 14:13	7440-42-8	
Calcium	**224000**	ug/L	4000	1510	20	04/28/21 14:32	05/13/21 14:13	7440-70-2	
Iron	**10100**	ug/L	1000	428	20	04/28/21 14:32	05/13/21 14:13	7439-89-6	
Magnesium	**40800**	ug/L	1000	628	20	04/28/21 14:32	05/13/21 14:13	7439-95-4	
Manganese	**2710**	ug/L	100	14.7	20	04/28/21 14:32	05/13/21 14:13	7439-96-5	
Potassium	**7020J**	ug/L	10000	2920	20	04/28/21 14:32	05/13/21 14:13	7440-09-7	
Sodium	**101000**	ug/L	10000	5080	20	04/28/21 14:32	05/13/21 14:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**264**	mg/L	20.0	7.5	1		04/27/21 10:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1270**	mg/L	13.3	13.3	1		04/22/21 13:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**18.0**	mg/L	1.0	0.39	1		04/27/21 19:17	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		04/27/21 19:17	16984-48-8	
Sulfate	**604**	mg/L	50.0	21.0	50		04/27/21 19:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-4S **Lab ID: 60366962032** Collected: 04/20/21 14:00 Received: 04/21/21 03:49 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	**8780**	ug/L	100	8.6	1	05/10/21 09:56	05/14/21 16:56	7440-42-8	M1
Calcium	**115000**	ug/L	200	75.4	1	05/10/21 09:56	05/14/21 16:56	7440-70-2	M1
Iron	**9360**	ug/L	50.0	21.4	1	05/10/21 09:56	05/14/21 16:56	7439-89-6	
Magnesium	**25900**	ug/L	50.0	31.4	1	05/10/21 09:56	05/14/21 16:56	7439-95-4	
Manganese	**1880**	ug/L	5.0	0.74	1	05/10/21 09:56	05/14/21 16:56	7439-96-5	
Potassium	**6620**	ug/L	500	146	1	05/10/21 09:56	05/14/21 16:56	7440-09-7	
Sodium	**85800**	ug/L	500	254	1	05/10/21 09:56	05/14/21 16:56	7440-23-5	M1
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**338**	mg/L	20.0	7.5	1		05/03/21 21:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**392**	mg/L	5.0	5.0	1		04/26/21 11:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**25.4**	mg/L	5.0	1.9	5		04/29/21 00:55	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.086	1		04/29/21 00:39	16984-48-8	
Sulfate	**225**	mg/L	20.0	8.4	20		04/29/21 01:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Sample: L-LMW-2S **Lab ID: 60366962033** Collected: 04/21/21 11:02 Received: 04/24/21 03:10 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	**3440**	ug/L	100	8.6	1	05/10/21 09:56	05/13/21 23:25	7440-42-8	
Calcium	**53500**	ug/L	200	75.4	1	05/10/21 09:56	05/13/21 23:25	7440-70-2	
Iron	**<21.4**	ug/L	50.0	21.4	1	05/10/21 09:56	05/13/21 23:25	7439-89-6	
Magnesium	**92.0**	ug/L	50.0	31.4	1	05/10/21 09:56	05/13/21 23:25	7439-95-4	
Manganese	**2.7J**	ug/L	5.0	0.74	1	05/10/21 09:56	05/13/21 23:25	7439-96-5	
Potassium	**8470**	ug/L	500	146	1	05/10/21 09:56	05/13/21 23:25	7440-09-7	
Sodium	**58200**	ug/L	500	254	1	05/10/21 09:56	05/13/21 23:25	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**35.6**	mg/L	20.0	7.5	1		05/04/21 10:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**402**	mg/L	5.0	5.0	1		04/28/21 11:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.0**	mg/L	2.0	0.78	2		05/07/21 22:36	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.086	1		05/07/21 21:49	16984-48-8	
Sulfate	**199**	mg/L	50.0	21.0	50		05/07/21 22:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716203
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: 60366969001

METHOD BLANK: 2881028 Matrix: Water
Associated Lab Samples: 60366969001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	04/30/21 18:55	
Calcium	ug/L	<75.4	200	75.4	04/30/21 18:55	
Iron	ug/L	<21.4	50.0	21.4	04/30/21 18:55	
Magnesium	ug/L	<31.4	50.0	31.4	04/30/21 18:55	
Manganese	ug/L	<0.74	5.0	0.74	04/30/21 18:55	
Potassium	ug/L	<146	500	146	04/30/21 18:55	
Sodium	ug/L	<254	500	254	04/30/21 18:55	

LABORATORY CONTROL SAMPLE: 2881029

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	955	95	85-115	
Calcium	ug/L	10000	11000	110	85-115	
Iron	ug/L	10000	9660	97	85-115	
Magnesium	ug/L	10000	9620	96	85-115	
Manganese	ug/L	1000	945	94	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10900	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2881030 2881031

Parameter	Units	60366969001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	4420	1000	1000	5220	5370	80	95	70-130	3	20	
Calcium	ug/L	120000	10000	10000	125000	130000	48	92	70-130	3	20	M1
Iron	ug/L	16600	10000	10000	25100	26300	85	96	70-130	4	20	
Magnesium	ug/L	20800	10000	10000	29000	30200	82	94	70-130	4	20	
Manganese	ug/L	1480	1000	1000	2340	2430	86	94	70-130	4	20	
Potassium	ug/L	5840	10000	10000	15800	16000	99	102	70-130	2	20	
Sodium	ug/L	31200	10000	10000	39600	40600	83	94	70-130	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 717031
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: 60366969002, 60366969003, 60366969004, 60366969005

METHOD BLANK: 2884481 Matrix: Water
Associated Lab Samples: 60366969002, 60366969003, 60366969004, 60366969005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	05/06/21 21:24	
Calcium	ug/L	<75.4	200	75.4	05/06/21 21:24	
Iron	ug/L	<21.4	50.0	21.4	05/06/21 21:24	
Magnesium	ug/L	<31.4	50.0	31.4	05/06/21 21:24	
Manganese	ug/L	<0.74	5.0	0.74	05/06/21 21:24	
Potassium	ug/L	<146	500	146	05/06/21 21:24	
Sodium	ug/L	<254	500	254	05/06/21 21:24	

LABORATORY CONTROL SAMPLE: 2884482

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10400	104	85-115	
Manganese	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	10300	103	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2884483 2884484

Parameter	Units	60367255001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	108	1000	1000	1150	1130	104	102	70-130	2	20	
Calcium	ug/L	176000	10000	10000	191000	186000	151	100	70-130	3	20	M1
Iron	ug/L	3680	10000	10000	14000	13800	103	101	70-130	2	20	
Magnesium	ug/L	45700	10000	10000	58100	56600	124	109	70-130	3	20	
Manganese	ug/L	8230	1000	1000	9590	9320	136	108	70-130	3	20	M1
Potassium	ug/L	5550	10000	10000	16300	15900	107	103	70-130	3	20	
Sodium	ug/L	11500	10000	10000	22200	21600	107	102	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 717296
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: 60366962014, 60366962015, 60366962016

METHOD BLANK: 2885311 Matrix: Water
Associated Lab Samples: 60366962014, 60366962015, 60366962016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	05/10/21 13:50	
Calcium	ug/L	<75.4	200	75.4	05/10/21 13:50	
Iron	ug/L	<21.4	50.0	21.4	05/10/21 13:50	
Magnesium	ug/L	<31.4	50.0	31.4	05/10/21 13:50	
Manganese	ug/L	<0.74	5.0	0.74	05/10/21 13:50	
Potassium	ug/L	<146	500	146	05/10/21 13:50	
Sodium	ug/L	<254	500	254	05/10/21 13:50	

LABORATORY CONTROL SAMPLE: 2885312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1050	105	85-115	
Calcium	ug/L	10000	10500	105	85-115	
Iron	ug/L	10000	10700	107	85-115	
Magnesium	ug/L	10000	10900	109	85-115	
Manganese	ug/L	1000	1060	106	85-115	
Potassium	ug/L	10000	10700	107	85-115	
Sodium	ug/L	10000	10900	109	85-115	

MATRIX SPIKE SAMPLE: 2885313

Parameter	Units	60366962003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	12000	1000	12300	29	70-130	M1
Calcium	ug/L	98000	10000	105000	72	70-130	
Iron	ug/L	5400	10000	15400	100	70-130	
Magnesium	ug/L	24100	10000	32700	86	70-130	
Manganese	ug/L	247	1000	1230	98	70-130	
Potassium	ug/L	7410	10000	17800	104	70-130	
Sodium	ug/L	85200	10000	93800	87	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2885314 2885315

Parameter	Units	60367051001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	5170	1000	1000	5770	6060	60	90	70-130	5	20	M1
Calcium	ug/L	192000	10000	10000	200000	198000	87	64	70-130	1	20	M1

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2885314 2885315

Parameter	Units	60367051001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	9520	10000	10000	20300	19500	108	100	70-130	4	20	
Magnesium	ug/L	25400	10000	10000	33500	34900	82	96	70-130	4	20	
Manganese	ug/L	1720	1000	1000	2740	2700	102	99	70-130	1	20	
Potassium	ug/L	6480	10000	10000	16900	16900	104	105	70-130	0	20	
Sodium	ug/L	56000	10000	10000	66800	66600	108	106	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 719400
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: 60366962032

METHOD BLANK: 2893271 Matrix: Water
Associated Lab Samples: 60366962032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	05/14/21 16:40	
Calcium	ug/L	<75.4	200	75.4	05/14/21 16:40	
Iron	ug/L	<21.4	50.0	21.4	05/14/21 16:40	
Magnesium	ug/L	<31.4	50.0	31.4	05/14/21 16:40	
Manganese	ug/L	<0.74	5.0	0.74	05/14/21 16:40	
Potassium	ug/L	<146	500	146	05/14/21 16:40	
Sodium	ug/L	<254	500	254	05/14/21 16:40	

LABORATORY CONTROL SAMPLE: 2893272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	992	99	85-115	
Calcium	ug/L	10000	9780	98	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	9880	99	85-115	
Sodium	ug/L	10000	10200	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893273 2893274

Parameter	Units	60366962023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	8670	1000	1000	9620	9650	95	98	70-130	0	20	
Calcium	ug/L	117000	10000	10000	126000	128000	86	105	70-130	1	20	
Iron	ug/L	9310	10000	10000	19200	19300	99	100	70-130	1	20	
Magnesium	ug/L	25600	10000	10000	35300	35400	97	99	70-130	0	20	
Manganese	ug/L	1850	1000	1000	2860	2860	101	101	70-130	0	20	
Potassium	ug/L	6640	10000	10000	16500	16700	98	100	70-130	1	20	
Sodium	ug/L	85900	10000	10000	95400	96500	96	106	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893275 2893276

Parameter	Units	60366962032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	8780	1000	1000	9250	9540	47	76	70-130	3	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893275 2893276

Parameter	Units	60366962032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	115000	10000	10000	119000	126000	40	105	70-130	5	20	M1
Iron	ug/L	9360	10000	10000	18600	19500	93	102	70-130	5	20	
Magnesium	ug/L	25900	10000	10000	34300	35200	84	93	70-130	3	20	
Manganese	ug/L	1880	1000	1000	2790	2850	92	98	70-130	2	20	
Potassium	ug/L	6620	10000	10000	16000	16600	94	100	70-130	3	20	
Sodium	ug/L	85800	10000	10000	91100	95600	53	98	70-130	5	20	M1

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 719402
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: 60366962033

METHOD BLANK: 2893278 Matrix: Water
Associated Lab Samples: 60366962033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	11.4J	100	8.6	05/13/21 22:07	
Calcium	ug/L	<75.4	200	75.4	05/13/21 22:07	
Iron	ug/L	<21.4	50.0	21.4	05/13/21 22:07	
Magnesium	ug/L	<31.4	50.0	31.4	05/13/21 22:07	
Manganese	ug/L	<0.74	5.0	0.74	05/13/21 22:07	
Potassium	ug/L	<146	500	146	05/13/21 22:07	
Sodium	ug/L	<254	500	254	05/13/21 22:07	

LABORATORY CONTROL SAMPLE: 2893279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	958	96	85-115	
Calcium	ug/L	10000	9660	97	85-115	
Iron	ug/L	10000	9540	95	85-115	
Magnesium	ug/L	10000	9870	99	85-115	
Manganese	ug/L	1000	1000	100	85-115	
Potassium	ug/L	10000	9820	98	85-115	
Sodium	ug/L	10000	9620	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893280 2893281

Parameter	Units	60367582003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	14600	1000	1000	15400	15300	84	74	70-130	1	20	
Calcium	ug/L	7180	10000	10000	16500	16400	93	92	70-130	1	20	
Iron	ug/L	203	10000	10000	9700	9540	95	93	70-130	2	20	
Magnesium	ug/L	345	10000	10000	9860	9700	95	94	70-130	2	20	
Manganese	ug/L	11.0	1000	1000	1000	983	99	97	70-130	2	20	
Potassium	ug/L	2050	10000	10000	11800	11600	97	96	70-130	1	20	
Sodium	ug/L	237000	10000	10000	242000	240000	57	36	70-130	1	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893282 2893283

Parameter	Units	60367583001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	4240	1000	1000	5140	5110	89	86	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2893282 2893283

Parameter	Units	60367583001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	62800	10000	10000	70900	70200	81	73	70-130	1	20	
Iron	ug/L	8720	10000	10000	17600	17400	89	87	70-130	1	20	
Magnesium	ug/L	21700	10000	10000	30800	30400	90	87	70-130	1	20	
Manganese	ug/L	353	1000	1000	1300	1290	95	94	70-130	1	20	
Potassium	ug/L	5470	10000	10000	15100	15000	96	95	70-130	1	20	
Sodium	ug/L	25600	10000	10000	34100	33800	84	82	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716898 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366962014, 60366962015, 60366962016, 60366969001

METHOD BLANK: 2884099 Matrix: Water
Associated Lab Samples: 60366962014, 60366962015, 60366962016, 60366969001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.5	20.0	7.5	04/27/21 09:18	

LABORATORY CONTROL SAMPLE: 2884100

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

SAMPLE DUPLICATE: 2884101

Parameter	Units	60366969001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	371	369	1	10	

SAMPLE DUPLICATE: 2884102

Parameter	Units	60367012001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	155	155	0	10	

SAMPLE DUPLICATE: 2884103

Parameter	Units	60367051001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	450	466	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 717897
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366969002, 60366969005

METHOD BLANK: 2887339 Matrix: Water
Associated Lab Samples: 60366969002, 60366969005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.5	20.0	7.5	04/30/21 16:27	

LABORATORY CONTROL SAMPLE: 2887340

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	505	101	90-110	

SAMPLE DUPLICATE: 2887341

Parameter	Units	60366962021 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	528	539	2	10	

SAMPLE DUPLICATE: 2887342

Parameter	Units	60367255001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	581	604	4	10	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 718221
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366962032, 60366969003, 60366969004

METHOD BLANK: 2888655 Matrix: Water
Associated Lab Samples: 60366962032, 60366969003, 60366969004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.5	20.0	7.5	05/03/21 19:30	

LABORATORY CONTROL SAMPLE: 2888656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	496	99	90-110	

SAMPLE DUPLICATE: 2888657

Parameter	Units	60367741003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	262	265	1	10	

SAMPLE DUPLICATE: 2888658

Parameter	Units	60366962023 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	247	257	4	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 718267
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60366962033

METHOD BLANK: 2888781 Matrix: Water
Associated Lab Samples: 60366962033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.5	20.0	7.5	05/04/21 09:11	

LABORATORY CONTROL SAMPLE: 2888782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	505	101	90-110	

SAMPLE DUPLICATE: 2888784

Parameter	Units	60366962033 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	35.6	36.8	3	10	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716210
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366962014, 60366962015, 60366962016

METHOD BLANK: 2881078 Matrix: Water
Associated Lab Samples: 60366962014, 60366962015, 60366962016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/22/21 13:02	

LABORATORY CONTROL SAMPLE: 2881079

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1050	105	80-120	

SAMPLE DUPLICATE: 2881080

Parameter	Units	60367012001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	907	1	10	

SAMPLE DUPLICATE: 2881081

Parameter	Units	60367013003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	17.0	13.5	23	10	D6

SAMPLE DUPLICATE: 2881082

Parameter	Units	60367051001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	825	836	1	10	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716543
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366969001

METHOD BLANK: 2882556 Matrix: Water
Associated Lab Samples: 60366969001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/23/21 15:58	

LABORATORY CONTROL SAMPLE: 2882557

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1040	104	80-120	

SAMPLE DUPLICATE: 2882558

Parameter	Units	60366969001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	607	613	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716657
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366969002, 60366969005

METHOD BLANK: 2883304 Matrix: Water
Associated Lab Samples: 60366969002, 60366969005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/26/21 11:00	

LABORATORY CONTROL SAMPLE: 2883305

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1060	106	80-120	

SAMPLE DUPLICATE: 2883306

Parameter	Units	60366962021 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	569	565	1	10	

SAMPLE DUPLICATE: 2883307

Parameter	Units	60367255001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	735	709	4	10	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716658
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60366962032, 60366969003, 60366969004

METHOD BLANK: 2883313 Matrix: Water
Associated Lab Samples: 60366962032, 60366969003, 60366969004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/26/21 11:04	

LABORATORY CONTROL SAMPLE: 2883314

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

SAMPLE DUPLICATE: 2883315

Parameter	Units	60366962023 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	288	302	5	10	

SAMPLE DUPLICATE: 2883316

Parameter	Units	60367221009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	355	336	5	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 717180
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60366962033

METHOD BLANK: 2884921 Matrix: Water
Associated Lab Samples: 60366962033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/28/21 11:31	

LABORATORY CONTROL SAMPLE: 2884922

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

SAMPLE DUPLICATE: 2884923

Parameter	Units	60367383017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	321	303	6	10	

SAMPLE DUPLICATE: 2884924

Parameter	Units	60367513003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	577	599	4	10	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716504
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: 60366969001

METHOD BLANK: 2882463 Matrix: Water
Associated Lab Samples: 60366969001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.50J	1.0	0.39	04/25/21 09:45	
Fluoride	mg/L	<0.086	0.20	0.086	04/25/21 09:45	
Sulfate	mg/L	<0.42	1.0	0.42	04/25/21 09:45	

METHOD BLANK: 2885220 Matrix: Water
Associated Lab Samples: 60366969001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/27/21 08:09	
Fluoride	mg/L	<0.086	0.20	0.086	04/27/21 08:09	
Sulfate	mg/L	<0.42	1.0	0.42	04/27/21 08:09	

LABORATORY CONTROL SAMPLE: 2882464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	4.7	94	90-110	

LABORATORY CONTROL SAMPLE: 2885221

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2882466 2882467

Parameter	Units	60366969001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	10.1	5	5	16.1	18.9	120	176	80-120	16	15	M1,R1
Fluoride	mg/L	0.30	2.5	2.5	3.2	4.6	117	174	80-120	36	15	M1,R1
Sulfate	mg/L	83.9	50	50	155	169	142	170	80-120	9	15	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE SAMPLE: 2882468

Parameter	Units	60367220001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	134	100	244	110	80-120	
Fluoride	mg/L	ND	50	59.0	114	80-120	
Sulfate	mg/L	116	100	224	108	80-120	

SAMPLE DUPLICATE: 2882465

Parameter	Units	60366969001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	10.1	10.1	0	15	
Fluoride	mg/L	0.30	0.31	3	15	
Sulfate	mg/L	83.9	83.6	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716505
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: 60366969002, 60366969003, 60366969004, 60366969005

METHOD BLANK: 2882469 Matrix: Water
Associated Lab Samples: 60366969002, 60366969003, 60366969004, 60366969005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/26/21 10:15	
Fluoride	mg/L	<0.086	0.20	0.086	04/26/21 10:15	
Sulfate	mg/L	<0.42	1.0	0.42	04/26/21 10:15	

METHOD BLANK: 2886127 Matrix: Water
Associated Lab Samples: 60366969002, 60366969003, 60366969004, 60366969005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/27/21 07:33	
Fluoride	mg/L	<0.086	0.20	0.086	04/27/21 07:33	
Sulfate	mg/L	<0.42	1.0	0.42	04/27/21 07:33	

LABORATORY CONTROL SAMPLE: 2882470

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.3	93	90-110	
Sulfate	mg/L	5	4.6	92	90-110	

LABORATORY CONTROL SAMPLE: 2886128

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2882472 2882473

Parameter	Units	60366282001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	5	5	5.0	5.1	100	102	80-120	2	15	
Fluoride	mg/L	ND	2.5	2.5	2.5	2.5	99	100	80-120	1	15	
Sulfate	mg/L	ND	5	5	5.0	5.2	100	103	80-120	3	15	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE SAMPLE: 2882474

Parameter	Units	60367226001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	692	500	1200	102	80-120	
Fluoride	mg/L	ND	250	255	102	80-120	
Sulfate	mg/L	546	500	1030	98	80-120	

SAMPLE DUPLICATE: 2882471

Parameter	Units	60366282001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	ND	<0.39		15	
Fluoride	mg/L	ND	<0.086		15	
Sulfate	mg/L	ND	<0.42		15	

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716877
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: 60366962014, 60366962015, 60366962016

METHOD BLANK: 2884030 Matrix: Water
Associated Lab Samples: 60366962014, 60366962015, 60366962016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/27/21 08:08	
Fluoride	mg/L	<0.086	0.20	0.086	04/27/21 08:08	
Sulfate	mg/L	<0.42	1.0	0.42	04/27/21 08:08	

METHOD BLANK: 2886241 Matrix: Water
Associated Lab Samples: 60366962014, 60366962015, 60366962016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/28/21 09:21	
Fluoride	mg/L	<0.086	0.20	0.086	04/28/21 09:21	
Sulfate	mg/L	<0.42	1.0	0.42	04/28/21 09:21	

LABORATORY CONTROL SAMPLE: 2884031

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	106	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 2886242

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2884033 2884034

Parameter	Units	60366138006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	120	100	100	227	231	107	111	80-120	2	15	
Fluoride	mg/L	<0.086	2.5	2.5	2.2	2.4	86	97	80-120	11	15	
Sulfate	mg/L	258	100	100	367	368	109	110	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE SAMPLE: 2884035

Parameter	Units	60366962014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.9	5	7.6	113	80-120	
Fluoride	mg/L	0.32	2.5	2.9	104	80-120	
Sulfate	mg/L	53.7	50	94.7	82	80-120	

SAMPLE DUPLICATE: 2884032

Parameter	Units	60366138006 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	120	119	0	15	
Fluoride	mg/L	<0.086	<0.086		15	
Sulfate	mg/L	258	258	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 716978
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: 60366962032

METHOD BLANK: 2884377 Matrix: Water
Associated Lab Samples: 60366962032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/28/21 16:59	
Fluoride	mg/L	<0.086	0.20	0.086	04/28/21 16:59	
Sulfate	mg/L	<0.42	1.0	0.42	04/28/21 16:59	

METHOD BLANK: 2887096 Matrix: Water
Associated Lab Samples: 60366962032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	4.9J	10.0	3.9	04/29/21 11:19	
Fluoride	mg/L	<0.86	2.0	0.86	04/29/21 11:19	
Sulfate	mg/L	<4.2	10.0	4.2	04/29/21 11:19	

LABORATORY CONTROL SAMPLE: 2884378

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

LABORATORY CONTROL SAMPLE: 2887097

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	104	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2884379 2884380

Parameter	Units	60366962021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.6	5	5	9.3	9.3	94	93	80-120	0	15	
Fluoride	mg/L	0.22	2.5	2.5	2.7	2.7	100	99	80-120	1	15	
Sulfate	mg/L	11.7	5	5	16.8	16.7	102	99	80-120	1	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE SAMPLE: 2884382

Parameter	Units	60367347001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	22.1	25	46.1	96	80-120	
Fluoride	mg/L	0.41	2.5	2.9	99	80-120	
Sulfate	mg/L	2500	2000	4540	102	80-120	

SAMPLE DUPLICATE: 2884381

Parameter	Units	60366962021 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	4.6	4.6	0	15	
Fluoride	mg/L	0.22	0.23	4	15	
Sulfate	mg/L	11.7	11.9	1	15	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

QC Batch: 718360
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: 60366962033

METHOD BLANK: 2889298 Matrix: Water
Associated Lab Samples: 60366962033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	05/07/21 11:54	
Fluoride	mg/L	<0.086	0.20	0.086	05/07/21 11:54	
Sulfate	mg/L	<0.42	1.0	0.42	05/07/21 11:54	

METHOD BLANK: 2896324 Matrix: Water
Associated Lab Samples: 60366962033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	05/11/21 07:30	
Fluoride	mg/L	<0.086	0.20	0.086	05/11/21 07:30	
Sulfate	mg/L	<0.42	1.0	0.42	05/11/21 07:30	

LABORATORY CONTROL SAMPLE: 2889299

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	2.3	93	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 2896325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	91	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2889301 2889302

Parameter	Units	60367583001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	23.1	25	25	46.8	49.4	95	105	80-120	5	15	
Fluoride	mg/L	0.38	2.5	2.5	3.5	2.7	125	91	80-120	27	15	M1,R1
Sulfate	mg/L	15.8	25	25	39.3	42.0	94	105	80-120	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

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QUALITY CONTROL DATA

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

MATRIX SPIKE SAMPLE: 2889303

Parameter	Units	60368243002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	696	500	1200	100	80-120	
Fluoride	mg/L	ND	250	267	102	80-120	
Sulfate	mg/L	555	500	1070	102	80-120	

SAMPLE DUPLICATE: 2889300

Parameter	Units	60367583001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	23.1	22.9	1	15	
Fluoride	mg/L	0.38	0.39	3	15	
Sulfate	mg/L	15.8	15.6	1	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALIFIERS

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60366962014	L-LMW-1S	EPA 200.7	717296	EPA 200.7	717436
60366962015	L-LMW-7S	EPA 200.7	717296	EPA 200.7	717436
60366962016	L-LMW-8S	EPA 200.7	717296	EPA 200.7	717436
60366969001	L-LMW-6S	EPA 200.7	716203	EPA 200.7	716308
60366969002	L-LMW-5S	EPA 200.7	717031	EPA 200.7	717130
60366969003	L-LMW-3S	EPA 200.7	717031	EPA 200.7	717130
60366969004	L-LMW-DUP-1	EPA 200.7	717031	EPA 200.7	717130
60366969005	L-LMW-FB-1	EPA 200.7	717031	EPA 200.7	717130
60366962032	L-LMW-4S	EPA 200.7	719400	EPA 200.7	719546
60366962033	L-LMW-2S	EPA 200.7	719402	EPA 200.7	719547
60366962014	L-LMW-1S	SM 2320B	716898		
60366962015	L-LMW-7S	SM 2320B	716898		
60366962016	L-LMW-8S	SM 2320B	716898		
60366969001	L-LMW-6S	SM 2320B	716898		
60366969002	L-LMW-5S	SM 2320B	717897		
60366969003	L-LMW-3S	SM 2320B	718221		
60366969004	L-LMW-DUP-1	SM 2320B	718221		
60366969005	L-LMW-FB-1	SM 2320B	717897		
60366962032	L-LMW-4S	SM 2320B	718221		
60366962033	L-LMW-2S	SM 2320B	718267		
60366962014	L-LMW-1S	SM 2540C	716210		
60366962015	L-LMW-7S	SM 2540C	716210		
60366962016	L-LMW-8S	SM 2540C	716210		
60366969001	L-LMW-6S	SM 2540C	716543		
60366969002	L-LMW-5S	SM 2540C	716657		
60366969003	L-LMW-3S	SM 2540C	716658		
60366969004	L-LMW-DUP-1	SM 2540C	716658		
60366969005	L-LMW-FB-1	SM 2540C	716657		
60366962032	L-LMW-4S	SM 2540C	716658		
60366962033	L-LMW-2S	SM 2540C	717180		
60366962014	L-LMW-1S	EPA 300.0	716877		
60366962015	L-LMW-7S	EPA 300.0	716877		
60366962016	L-LMW-8S	EPA 300.0	716877		
60366969001	L-LMW-6S	EPA 300.0	716504		
60366969002	L-LMW-5S	EPA 300.0	716505		
60366969003	L-LMW-3S	EPA 300.0	716505		
60366969004	L-LMW-DUP-1	EPA 300.0	716505		
60366969005	L-LMW-FB-1	EPA 300.0	716505		

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LEC LCPB
Pace Project No.: 60366969

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60366962032	**L-LMW-4S**	EPA 300.0	716978		
60366962033	**L-LMW-2S**	EPA 300.0	718360		

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Sample Condition Upon Receipt

WO# : 60366969

60366969

Client Name: Golder Associates

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

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

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

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

Thermometer Used: T-298 **Type of Ice:** ~~Wet~~ Blue None

Cooler Temperature (°C): As-read 1.4 Corr. Factor 0.0 Corrected 1.4

Date and initials of person examining contents: 4-17-2100

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# 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 9:34 am, 4/19/21

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #3
Project Name:	Ameren Labadie Energy Center LCPB
Project Number:	153140602.0001B

Section C — Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: N	Chloride/Fluoride/Sulfate: N	App III and Cat/An Metals: N	Alkalinity: N	TDS: N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	~~L-LMW-MS-1~~ L-Lmw-15	WT	G			4/15/21	1319		2	1		1							X	X	X	X		60366969
2	~~L-LMW-MSD-1~~ L-Lmw-65	WT	G			4/16/21	0945		1	1		1												
3	L-Lmw-75	WT	G			4/15/21	1013																	
4	L-Lmw-85	WT	G			4/15/21	1532																	
5	L-Lmw-MS-1	WT	G			4/16/21	0945																	
6	L-Lmw-MSD-1	WT	G			4/16/21	0945		↓	↓		↓												
7		WT	G																					
8		WT	G																					
9		WT	G																					
10		WT	G																					
11		WT	G																					
12		WT	G																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] Golder	04/16/21	1720	Angela Mc	4/16	1730				
	Angela Mc	4/16	1730	Davison/Pace	~~4/16/21~~ 4/17/21	0335	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schn

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/16/21

*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.

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

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Sample Condition Upon Receipt

WO# : 60366969

60366969

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): As-read 0.2 Corr. Factor 0.0 Corrected 0.2

Date and initials of person examining contents: 4.21 ML

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? ☑Yes ☐No ☐N/A (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603173		List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only) ☐Yes ☐No Potassium iodide test strip turns blue/purple? (Preserve) ☐Yes ☐No		
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 8:12 am, 4/22/21

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 6 1 of 6 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #2
Project Name:	Ameren Labadie Energy Center ~~LCPA CA~~ LCCB
Project Number:	153140602.0001B

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	~~Appendix IV Metals **~~	~~Mercury~~	~~Radium 226~~	~~Radium 226~~	~~Ferrous/Ferric Iron~~	~~SM4500-S2D Sulfide~~	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	N	N	N	N	N	N	N				
1	~~L-MW-26~~ L-LMW-5S	WT	G			4-19-21	1615		2	1		1							/	/	/	/									60366969
2	~~L-LMW-1S~~ L-LMW-3S	WT	G			4-20-21	1140		2	1		1							/	/	/	/									
3	L-LMW-2S	WT	G																												
4	L-LMW-4S	WT	G			4-20-21	1400		2	1		1							/	/	/	/									
5	~~L-LMW-7S~~	WT	G																												
6	~~L-LMW-8S~~	WT	G																												
7	~~L-BMW-1S~~	WT	G																												
8	~~L-BMW-2S~~	WT	G																												
9	L-LMW-DUP-1	WT	G			4-20-21	—		2	1		1							/	/	/	/									
10	L-LMW-FB-1	WT	G			4-19-21	1630		2	1		1							/	/	/	/									
11		WT	G																												
12		WT	G																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert / Golder	4/20/21	1730	M Langer / PACE	4-21-21	0349	0.2	4	4	4
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: B Talbert DATE Signed (MM/DD/YY): 04/20/21

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.

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Sample Condition Upon Receipt

WO# : 60366962

60366962

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 0.9 **Corr. Factor** 0.0 **Corrected** 0.9

Temperature should be above freezing to 6°C 14.9 14.9

Date and initials of person examining contents: 4/24/21 SK

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	Fe+2 4/24/21 SK
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# LW3173	☑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: REVIEWED *By jchurch at 9:19 am, 4/26/21* Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 2

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #3
Project Name:	Ameren Labadie Energy Center LCPB
Project Number:	153140603.0001B

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	N		
1	L-LMW-1S	WT	G																					
2	L-LMW-2S	WT	G			4/21/21	1102		7	1		1							X	X	X	X		
3	L-LMW-3S	WT	G																					
4	L-LMW-4S	WT	G																					
5	L-LMW-5S	WT	G																					
6	L-LMW-6S	WT	G																					
7	L-LMW-7S	WT	G																					
8	L-LMW-8S	WT	G																					
9	L-BMW-1S	WT	G																					
10	L-BMW-2S	WT	G																					
11	L-LMW-DUP-1	WT	G																					
12	L-LMW-FB-1	WT	G																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Golder	4/23/21	1725	Pace	4/24/21	0310	14.9	N	4/24/21 N	Y
							0.9	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/23/21

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

MEMORANDUM

DATE July 28, 2021 **Project No.** 153140603

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, LABADIE ENERGY CENTER – LCPB – DETECTION MONITORING - DATA PACKAGE 60366969

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

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren - LEC - LCPB
Project Number: 153140603
Reviewer: A. Muehlfarth
Validation Date: 7/28/2021

Laboratory: Pace Analytical
SDG #: 60366969
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions);
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names L-LMW-6S, L-LMW-5S, L-LMW-3S, L-LMW-DUP-1, L-LMW-FB-1, L-LMW-1S, L-LMW-7S, L-LMW-8S, L-LMW-4S, L-LMW-2S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			4/15/2021 - 4/21/2021
b) Sampling team indicated?	x			SMK/BTT/AMM/EMS
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			L-LMW-DUP-1 @ L-LMW-3S
b) Were field dup. precision criteria met (note RPD)?	x			Max RPD 5.9% [<20%]
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

Sulfate and Chloride were diluted in several samples, metals were diluted in L-LMW-8S, no qualification necessary.

Method Blanks:

2893278: Boron (11.4J). Associated with sample 60366962033. Sample result >RL and 10x blank, no qualification necessary.

2882463: Chloride (0.50J). Associated with sample 60366969001. Sample result >RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

2887096: Chloride (4.9J). Associated with sample 60366962032. Sample result >RL but < 10x blank, qualified as estimate.

L-LMW-FB-1 @ L-LMW-5S: TDS (34.0). Sample result > 10x blank, no qualification necessary.

Laboratory Duplicate:

2881081: RPD for TDS (23%) exceeds limit (10%). Duplicate performed on an unrelated sample, no qualification necessary.

MS/MSD:

2881030/2881031: MS % recovery low for Calcium. Associated with sample 60366969001. Only 1 QC indicator outside of control limit, no qualification necessary.

2893275/2893276: MS % recovery low for Boron, Calcium, Sodium. Associated with sample 60366962032.Only 1 QC indicator outside of control limit, no qualification necessary.

2882466/2882467: MSD % recovery high and RPD exceeds limit for Chloride, Fluoride; MS/MSD % recovery high for Sulfate. Associated with sample 60366969001.

2893280/2893281: MS/MSD % recovery low for Sodium. MS/MSD performed on unrelated sample, no qualification necessary.

2885314/2885315: MS % recovery low for Boron, Calcium. MS/MSD performed on unrelated sample, no qualification necessary.

2885313: MS % recovery low for Boron. MS performed on unrelated sample, no qualification necessary.

2889301/2889302: MS % recovery high and RPD exceeds limit for Fluoride. MS/MSD performed on unrelated sample, no qualification necessary.

2884483/2884484: MS% recovery high for Calcium, Manganese. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LMW-4S	Chloride	25.4	J	Detected in blank, 10x blank > result > RL
L-LMW-6S	Chloride	10.1	J	MSD % recovery high, RPD exceeds limit
"	Fluoride	0.30	J	"
"	Sulfate	83.9	J+	MS/MSD % recovery high

Signature: Ann Muehlfarth Date: 7/28/2021

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

June 21, 2021

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

RE: Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on June 09, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 20-020-0
Arkansas Drinking Water
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212019-9
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60371615001	**L-LMW-5S**	Water	06/07/21 13:23	06/09/21 04:00
60371615002	**L-LMW-8S**	Water	06/08/21 12:58	06/09/21 04:00
60371615003	**L-LCPB-FB-1**	Water	06/07/21 13:40	06/09/21 04:00
60371615004	**L-LCPB-DUP-1**	Water	06/07/21 08:00	06/09/21 04:00

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60371615001	**L-LMW-5S**	EPA 200.7	JLH	1	PASI-K
		SM 2540C	ALH	1	PASI-K
		EPA 300.0	CRN2	2	PASI-K
60371615002	**L-LMW-8S**	EPA 200.7	JLH	1	PASI-K
		SM 2540C	ALH	1	PASI-K
		EPA 300.0	CRN2	2	PASI-K
60371615003	**L-LCPB-FB-1**	EPA 200.7	JLH	1	PASI-K
		SM 2540C	ALH	1	PASI-K
		EPA 300.0	CRN2	2	PASI-K
60371615004	**L-LCPB-DUP-1**	EPA 200.7	JLH	1	PASI-K
		SM 2540C	ALH	1	PASI-K
		EPA 300.0	CRN2	2	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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

ANALYTICAL RESULTS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Sample: L-LMW-5S **Lab ID: 60371615001** Collected: 06/07/21 13:23 Received: 06/09/21 04:00 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								
Calcium	**127000**	ug/L	200	75.4	1	06/15/21 09:14	06/15/21 19:47	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**410**	mg/L	5.0	5.0	1		06/11/21 10:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.5**	mg/L	1.0	0.39	1		06/17/21 15:23	16887-00-6	B
Fluoride	**0.19J**	mg/L	0.20	0.086	1		06/17/21 15:23	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Sample: L-LMW-8S **Lab ID: 60371615002** Collected: 06/08/21 12:58 Received: 06/09/21 04:00 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								
Calcium	**194000**	ug/L	200	75.4	1	06/15/21 09:14	06/15/21 19:50	7440-70-2	M1
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1110**	mg/L	13.3	13.3	1		06/11/21 10:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**16.2**	mg/L	1.0	0.39	1		06/18/21 19:31	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		06/18/21 19:31	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Sample: L-LCPB-FB-1 **Lab ID: 60371615003** Collected: 06/07/21 13:40 Received: 06/09/21 04:00 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								
Calcium	**<75.4**	ug/L	200	75.4	1	06/15/21 09:14	06/15/21 19:57	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**10.5**	mg/L	5.0	5.0	1		06/11/21 10:51		B
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**0.65J**	mg/L	1.0	0.39	1		06/17/21 15:35	16887-00-6	B
Fluoride	**<0.086**	mg/L	0.20	0.086	1		06/17/21 15:35	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Sample: L-LCPB-DUP-1 **Lab ID: 60371615004** Collected: 06/07/21 08:00 Received: 06/09/21 04:00 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								
Calcium	**126000**	ug/L	200	75.4	1	06/15/21 09:14	06/15/21 20:00	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**409**	mg/L	10.0	10.0	1		06/11/21 10:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.5**	mg/L	1.0	0.39	1		06/17/21 15:47	16887-00-6	B
Fluoride	**0.20**	mg/L	0.20	0.086	1		06/17/21 15:47	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

QC Batch: 726287
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: 60371615001, 60371615002, 60371615003, 60371615004

METHOD BLANK: 2918194 Matrix: Water
Associated Lab Samples: 60371615001, 60371615002, 60371615003, 60371615004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	ug/L	<75.4	200	75.4	06/15/21 19:27	

LABORATORY CONTROL SAMPLE: 2918195

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9600	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2918196 2918197

Parameter	Units	60371615002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	194000	10000	10000	208000	205000	138	105	70-130	2	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2918198 2918199

Parameter	Units	60371616004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	123000	10000	10000	132000	136000	90	128	70-130	3	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

QC Batch: 725740 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60371615001, 60371615002, 60371615003, 60371615004

METHOD BLANK: 2916343 Matrix: Water
Associated Lab Samples: 60371615001, 60371615002, 60371615003, 60371615004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	7.5	5.0	5.0	06/11/21 10:50	

LABORATORY CONTROL SAMPLE: 2916344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	976	98	80-120	

SAMPLE DUPLICATE: 2916345

Parameter	Units	60371616004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	462	478	3	10	

SAMPLE DUPLICATE: 2916346

Parameter	Units	60371615002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1110	1100	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

QC Batch: 726791
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: 60371615001, 60371615003, 60371615004

METHOD BLANK: 2920009 Matrix: Water
Associated Lab Samples: 60371615001, 60371615003, 60371615004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.65J	1.0	0.39	06/17/21 08:37	
Fluoride	mg/L	<0.086	0.20	0.086	06/17/21 08:37	

METHOD BLANK: 2923076 Matrix: Water
Associated Lab Samples: 60371615001, 60371615003, 60371615004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/18/21 09:15	
Fluoride	mg/L	<0.086	0.20	0.086	06/18/21 09:15	

LABORATORY CONTROL SAMPLE: 2920010

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

LABORATORY CONTROL SAMPLE: 2923077

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2920012 2920013

Parameter	Units	60371788001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	144	100	100	205	230	60	85	80-120	12	15	M1
Fluoride	mg/L	ND	50	50	52.4	63.6	105	127	80-120	19	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

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QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

MATRIX SPIKE SAMPLE: 2920014

Parameter	Units	60371523003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	226	100	337	111	80-120	
Fluoride	mg/L	ND	50	56.2	112	80-120	

SAMPLE DUPLICATE: 2920011

Parameter	Units	60371788001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	144	111	26	15	D6
Fluoride	mg/L	ND	<1.7		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
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QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

QC Batch: 727236
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: 60371615002

METHOD BLANK: 2921782 Matrix: Water
Associated Lab Samples: 60371615002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.67J	1.0	0.39	06/18/21 15:42	
Fluoride	mg/L	<0.086	0.20	0.086	06/18/21 15:42	

METHOD BLANK: 2923401 Matrix: Water
Associated Lab Samples: 60371615002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.59J	1.0	0.39	06/21/21 08:40	
Fluoride	mg/L	<0.086	0.20	0.086	06/21/21 08:40	

LABORATORY CONTROL SAMPLE: 2921783

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	

LABORATORY CONTROL SAMPLE: 2923402

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.3	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2921784 2921785

Parameter	Units	60371614001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21.3	10	10	31.3	31.5	100	102	80-120	1	15	
Fluoride	mg/L	<0.086	2.5	2.5	2.7	2.8	104	108	80-120	4	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2921787 2921788

Parameter	Units	60371615002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.2	5	5	21.6	21.8	108	112	80-120	1	15	E
Fluoride	mg/L	<0.086	2.5	2.5	2.9	3.0	115	118	80-120	3	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2921790 2921791

Parameter	Units	60371616004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.3	5	5	11.3	11.3	99	100	80-120	0	15	
Fluoride	mg/L	0.15J	2.5	2.5	2.7	2.8	102	104	80-120	2	15	

SAMPLE DUPLICATE: 2921786

Parameter	Units	60371614001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	21.3	21.3	0	15	
Fluoride	mg/L	<0.086	0.097J		15	

SAMPLE DUPLICATE: 2921789

Parameter	Units	60371615002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	16.2	16.2	0	15	
Fluoride	mg/L	<0.086	0.29		15	

SAMPLE DUPLICATE: 2921792

Parameter	Units	60371616004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	6.3	6.3	0	15	
Fluoride	mg/L	0.15J	0.14J		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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(913)599-5665

QUALIFIERS

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN-Verification-LCPB
Pace Project No.: 60371615

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60371615001	**L-LMW-5S**	EPA 200.7	726287	EPA 200.7	726362
60371615002	**L-LMW-8S**	EPA 200.7	726287	EPA 200.7	726362
60371615003	**L-LCPB-FB-1**	EPA 200.7	726287	EPA 200.7	726362
60371615004	**L-LCPB-DUP-1**	EPA 200.7	726287	EPA 200.7	726362
60371615001	**L-LMW-5S**	SM 2540C	725740		
60371615002	**L-LMW-8S**	SM 2540C	725740		
60371615003	**L-LCPB-FB-1**	SM 2540C	725740		
60371615004	**L-LCPB-DUP-1**	SM 2540C	725740		
60371615001	**L-LMW-5S**	EPA 300.0	726791		
60371615002	**L-LMW-8S**	EPA 300.0	727236		
60371615003	**L-LCPB-FB-1**	EPA 300.0	726791		
60371615004	**L-LCPB-DUP-1**	EPA 300.0	726791		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60371615

60371615

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 1.0 **Corr. Factor** 0.0 **Corrected** 1.0

Date and initials of person examining contents: 6/9/21 SZ

Temperature should be above freezing to 6°C 1.3 2.0 ↓ 1.3 2.0

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# 403173	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 9:51 pm, 6/9/21

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann/Eric Schneider/Brendan Talbert
Purchase Order No.:	
Project Name:	Ameren – Verification Sampling-LCPB
Project Number:	153i40603.0001B

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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)	200.7 Boron	200.7 Calcium	Chloride	Fluoride	Sulfate	TDS					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N	N						
1	L-LMW-55	WT	G			6-7-21	1323		2	1		1							/	/	/		/				1-BP2U	1-BP3N		60571615
2	L-LMW-BS	WT	G			6-8-21	1258		1	1		1							/	/	/		/				↓	↓		
3	L-LCPB-FB-1	WT	G			6-7-21	1340		1	1		1							/	/	/		/							
4	L-LCPB-Dup-1	WT	G			6-7-21	—		1	1		1							/	/	/		/							
5	L-LCPB-MS-1	WT	G			6-8-21	1258		1	1		1							/	/	/		/							
6	L-LCPB-MSD-1	WT	G			6-8-21	1258		1	1		1							/	/	/		/				↓	↓		
7		WT	G																											
8		WT	G																											
9		WT	G																											
10		WT	G																											
11		WT	G																											
12		WT	G																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Brendan Talbert/Golder	6-8-21	1150	[illegible]/Pace	6/9/21	0400	1.0	Y	Y	Y
							1.3	Y	Y	Y
							2.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/08/21

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

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

MEMORANDUM

DATE August 31, 2021 **Project No.** 153140603

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, LABADIE ENERGY CENTER – LCPB – VERIFICATION SAMPLING - DATA PACKAGE 60371615

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

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren - LEC - LCPB
Project Number: 153140603
Reviewer: A. Muehlfarth
Validation Date: 8/31/2021

Laboratory: Pace Analytical Services - Kansas City
SDG #: 60371615
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ _____
Sample Names L-LMW-5S, L-LMW-8S, L-LCPB-FB-1, L-LCPB-DUP-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			6/7/2021 - 6/8/2021
b) Sampling team indicated?	x			BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Conductivity, ORP, Temp, DO, Turbidity
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies: _____

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			L-LCPB-DUP-1 @ L-LMW-5S
b) Were field dup. precision criteria met (note RPD)?	x			Max RPD: 5.1% [<20%]
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

Method Blank:

2916343: TDS (7.5), associated with samples -001 through -004. Sample results >RL and 10x blank were not qualified. Results >RL but <10x the blank detection were qualified as estimates.

2920009: Chloride (0.65J), associated with samples -001, -003, -004. Sample results>RL but <10x the blank detection were qualified as estimates. Results <RL were qualified as non-detect.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

2921782/2923401: Chloride (0.67J/0.59J), associated with sample -002. Sample result >RL and 10x blank detection, no qualification necessary.

Field Blanks:

L-LCPB-FB-1 @ L-LMW-5S: TDS (10.5), Chloride (0.65J). Sample results >RL and 10x blank result were not qualified. Results >RL but <10x blank detection were qualified as estimates.

Duplicates:

Laboratory Duplicate 2920011: DUP RPD exceeds limit (15%) for Chloride (26%). Associated with unrelated sample, no qualification necessary.

MS/MSD:

2918196/2918197: MS % recovery high for Calcium. Associated with sample -002. Only 1 QC indicator is outside of control limits, no qualification necessary.

2920012/2920013: MSD % recovery high and RPD exceeds limit for Fluoride. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-LCPB-FB-1	TDS	10.5	J	Detected in MB, 10x blank > result > RL
L-LCPB-DUP-1	Chloride	3.5	J	"
L-LMW-5S	"	3.5	J	Detected in MB and FB, 10x blank > result > RL
L-LCPB-FB-1	"	1.0	U	Detected in MB, result <RL

Signature: _____ Ann Muhlfeith _____ Date: 8/31/2021

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

December 28, 2021

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

RE: Project: AMEREN LCPB
Pace Project No.: 60385390

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between November 03, 2021 and November 06, 2021. 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
- Pace Analytical Services - Kansas City
- Pace Analytical Services - Greensburg

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

Sincerely,

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

Enclosures

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

Pace Analytical Services, LLC
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Lenexa, KS 66219
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CERTIFICATIONS

Project: AMEREN LCPB
Pace Project No.: 60385390

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Soil Permit #: P330-19-00257

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

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.: 60385390

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60385390001	**L-LMW-5S**	Water	11/02/21 15:20	11/03/21 03:40
60385390002	**L-LMW-3S**	Water	11/03/21 14:52	11/06/21 05:30
60385390003	**L-LMW-FB-1**	Water	11/04/21 11:19	11/06/21 05:30
60385390004	**L-LMW-6S**	Water	11/05/21 10:44	11/06/21 05:30
60385390005	**L-LMW-DUP-1**	Water	11/03/21 00:00	11/06/21 05:30
60385386002	**L-BMW-1S**	Water	11/01/21 12:10	11/03/21 03:48
60385386003	**L-BMW-2S**	Water	11/01/21 13:40	11/03/21 03:48
60385386011	**L-LMW-1S**	Water	11/04/21 10:55	11/06/21 05:30
60385386005	**L-LMW-2S**	Water	11/02/21 12:20	11/03/21 03:48
60385386012	**L-LMW-4S**	Water	11/03/21 12:00	11/06/21 05:30
60385386013	**L-LMW-7S**	Water	11/05/21 11:47	11/06/21 05:30
60385386014	**L-LMW-8S**	Water	11/05/21 12:48	11/06/21 05:30

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60385390

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60385390001	**L-LMW-5S**	EPA 200.7	JLH, MA1	7	PASI-K
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60385390002	**L-LMW-3S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60385390003	**L-LMW-FB-1**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60385390004	**L-LMW-6S**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60385390005	**L-LMW-DUP-1**	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60385386002	**L-BMW-1S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	MAW	3	PASI-K
60385386003	**L-BMW-2S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	MAW	3	PASI-K
60385386011	**L-LMW-1S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN LCPB
Pace Project No.: 60385390

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	LDB	3	PASI-K
60385386005	**L-LMW-2S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	MAW	3	PASI-K
60385386012	**L-LMW-4S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60385386013	**L-LMW-7S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60385386014	**L-LMW-8S**	EPA 200.7	MA1	7	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		SM 2320B	SWJ	1	PASI-I
		SM 2540C	BLA	1	PASI-K
		EPA 300.0	LDB, MAW	3	PASI-K

PASI-I = Pace Analytical Services - Indianapolis
PASI-K = Pace Analytical Services - Kansas City
PASI-PA = Pace Analytical Services - Greensburg

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-5S **Lab ID: 60385390001** Collected: 11/02/21 15:20 Received: 11/03/21 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**51.6J**	ug/L	100	8.6	1	11/09/21 10:13	11/10/21 13:11	7440-42-8	
Calcium	**137000**	ug/L	1000	377	5	11/09/21 10:13	11/24/21 11:59	7440-70-2	M1
Iron	**49.3J**	ug/L	50.0	21.4	1	11/09/21 10:13	11/10/21 13:11	7439-89-6	
Magnesium	**13000**	ug/L	50.0	31.4	1	11/09/21 10:13	11/10/21 13:11	7439-95-4	
Manganese	**6.1**	ug/L	5.0	0.74	1	11/09/21 10:13	11/10/21 13:11	7439-96-5	
Potassium	**3630**	ug/L	500	146	1	11/09/21 10:13	11/10/21 13:11	7440-09-7	
Sodium	**15400**	ug/L	500	254	1	11/09/21 10:13	11/10/21 13:11	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**378**	mg/L	2.0	2.0	1		11/12/21 11:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**423**	mg/L	10.0	10.0	1		11/09/21 09:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.6**	mg/L	1.0	0.39	1		11/09/21 16:08	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.086	1		11/09/21 16:08	16984-48-8	
Sulfate	**11.8**	mg/L	1.0	0.42	1		11/09/21 16:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-3S **Lab ID: 60385390002** Collected: 11/03/21 14:52 Received: 11/06/21 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	**4040**	ug/L	100	8.6	1	11/16/21 15:51	11/19/21 10:55	7440-42-8	
Calcium	**95500**	ug/L	200	75.4	1	11/16/21 15:51	11/19/21 10:55	7440-70-2	M1
Iron	**8070**	ug/L	50.0	21.4	1	11/16/21 15:51	11/19/21 10:55	7439-89-6	
Magnesium	**11400**	ug/L	50.0	31.4	1	11/16/21 15:51	11/19/21 10:55	7439-95-4	
Manganese	**814**	ug/L	5.0	0.74	1	11/16/21 15:51	11/19/21 10:55	7439-96-5	
Potassium	**7400**	ug/L	500	146	1	11/16/21 15:51	11/19/21 10:55	7440-09-7	
Sodium	**101000**	ug/L	500	254	1	11/16/21 15:51	11/19/21 10:55	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**253**	mg/L	2.0	2.0	1		11/12/21 11:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**640**	mg/L	10.0	10.0	1		11/10/21 14:32		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**20.7**	mg/L	2.0	0.78	2		11/12/21 20:10	16887-00-6	
Fluoride	**0.15J**	mg/L	0.20	0.086	1		11/13/21 22:57	16984-48-8	
Sulfate	**196**	mg/L	20.0	8.4	20		11/12/21 20:22	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.: 60385390

Sample: L-LMW-FB-1 **Lab ID: 60385390003** Collected: 11/04/21 11:19 Received: 11/06/21 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	**18.9J**	ug/L	100	8.6	1	11/16/21 15:51	11/19/21 11:02	7440-42-8	
Calcium	**<75.4**	ug/L	200	75.4	1	11/16/21 15:51	11/19/21 11:02	7440-70-2	
Iron	**<21.4**	ug/L	50.0	21.4	1	11/16/21 15:51	11/19/21 11:02	7439-89-6	
Magnesium	**<31.4**	ug/L	50.0	31.4	1	11/16/21 15:51	11/19/21 11:02	7439-95-4	
Manganese	**<0.74**	ug/L	5.0	0.74	1	11/16/21 15:51	11/19/21 11:02	7439-96-5	
Potassium	**<146**	ug/L	500	146	1	11/16/21 15:51	11/19/21 11:02	7440-09-7	
Sodium	**<254**	ug/L	500	254	1	11/16/21 15:51	11/19/21 11:02	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**<2.0**	mg/L	2.0	2.0	1		11/12/21 11:45		
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		11/11/21 08:06		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**0.43J**	mg/L	1.0	0.39	1		11/13/21 23:09	16887-00-6	B
Fluoride	**<0.086**	mg/L	0.20	0.086	1		11/13/21 23:09	16984-48-8	
Sulfate	**<0.42**	mg/L	1.0	0.42	1		11/13/21 23:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-6S **Lab ID: 60385390004** Collected: 11/05/21 10:44 Received: 11/06/21 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	**2090**	ug/L	100	8.6	1	11/16/21 15:51	11/19/21 11:04	7440-42-8	
Calcium	**149000**	ug/L	600	226	3	11/16/21 15:51	11/22/21 12:23	7440-70-2	
Iron	**4690**	ug/L	50.0	21.4	1	11/16/21 15:51	11/19/21 11:04	7439-89-6	
Magnesium	**23200**	ug/L	50.0	31.4	1	11/16/21 15:51	11/19/21 11:04	7439-95-4	
Manganese	**688**	ug/L	5.0	0.74	1	11/16/21 15:51	11/19/21 11:04	7439-96-5	
Potassium	**5570**	ug/L	500	146	1	11/16/21 15:51	11/19/21 11:04	7440-09-7	
Sodium	**18200**	ug/L	500	254	1	11/16/21 15:51	11/19/21 11:04	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**411**	mg/L	2.0	2.0	1		11/12/21 11:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**534**	mg/L	10.0	10.0	1		11/11/21 08:06		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**3.6**	mg/L	1.0	0.39	1		11/13/21 23:21	16887-00-6	B
Fluoride	**0.25**	mg/L	0.20	0.086	1		11/13/21 23:21	16984-48-8	
Sulfate	**50.9**	mg/L	10.0	4.2	10		11/12/21 21:21	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
Pace Project No.: 60385390

Sample: L-LMW-DUP-1 **Lab ID: 60385390005** Collected: 11/03/21 00:00 Received: 11/06/21 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	**4020**	ug/L	100	8.6	1	11/16/21 15:51	11/19/21 11:06	7440-42-8	
Calcium	**95700**	ug/L	200	75.4	1	11/16/21 15:51	11/19/21 11:06	7440-70-2	
Iron	**8020**	ug/L	50.0	21.4	1	11/16/21 15:51	11/19/21 11:06	7439-89-6	
Magnesium	**11500**	ug/L	50.0	31.4	1	11/16/21 15:51	11/19/21 11:06	7439-95-4	
Manganese	**818**	ug/L	5.0	0.74	1	11/16/21 15:51	11/19/21 11:06	7439-96-5	
Potassium	**7250**	ug/L	500	146	1	11/16/21 15:51	11/19/21 11:06	7440-09-7	
Sodium	**99600**	ug/L	500	254	1	11/16/21 15:51	11/19/21 11:06	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**256**	mg/L	2.0	2.0	1		11/12/21 11:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**649**	mg/L	10.0	10.0	1		11/10/21 14:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.6**	mg/L	5.0	1.9	5		11/16/21 12:18	16887-00-6	B
Fluoride	**0.48**	mg/L	0.20	0.086	1		11/16/21 01:54	16984-48-8	
Sulfate	**219**	mg/L	20.0	8.4	20		11/16/21 12:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-BMW-1S **Lab ID: 60385386002** Collected: 11/01/21 12:10 Received: 11/03/21 03:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**77.0J**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 16:50	7440-42-8	
Calcium	**260000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 13:51	7440-70-2	
Iron	**29800**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 16:50	7439-89-6	
Magnesium	**57800**	ug/L	500	314	10	11/22/21 16:33	12/01/21 13:51	7439-95-4	
Manganese	**2940**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 16:50	7439-96-5	
Potassium	**5850**	ug/L	500	146	1	11/22/21 16:33	11/30/21 16:50	7440-09-7	
Sodium	**24900**	ug/L	500	254	1	11/22/21 16:33	11/30/21 16:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**696**	mg/L	2.0	2.0	1		11/10/21 10:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**953**	mg/L	13.3	13.3	1		11/09/21 09:45		H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**13.7**	mg/L	1.0	0.39	1		11/19/21 17:41	16887-00-6	
Fluoride	**<0.086**	mg/L	0.20	0.086	1		11/19/21 17:41	16984-48-8	
Sulfate	**146**	mg/L	20.0	8.4	20		11/22/21 21:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-BMW-2S **Lab ID: 60385386003** Collected: 11/01/21 13:40 Received: 11/03/21 03:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**40.7J**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 16:52	7440-42-8	
Calcium	**140000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 13:57	7440-70-2	
Iron	**<21.4**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 16:52	7439-89-6	
Magnesium	**20400**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 16:52	7439-95-4	
Manganese	**4.3J**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 16:52	7439-96-5	
Potassium	**5460**	ug/L	500	146	1	11/22/21 16:33	11/30/21 16:52	7440-09-7	
Sodium	**3990**	ug/L	500	254	1	11/22/21 16:33	11/30/21 16:52	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**357**	mg/L	2.0	2.0	1		11/10/21 10:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**475**	mg/L	10.0	10.0	1		11/09/21 09:46		H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1.7**	mg/L	1.0	0.39	1		11/19/21 18:07	16887-00-6	B
Fluoride	**0.14J**	mg/L	0.20	0.086	1		11/19/21 18:07	16984-48-8	
Sulfate	**46.2**	mg/L	5.0	2.1	5		11/19/21 18:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-1S **Lab ID: 60385386011** Collected: 11/04/21 10:55 Received: 11/06/21 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	**3970**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 17:14	7440-42-8	
Calcium	**147000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 14:09	7440-70-2	
Iron	**2270**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 17:14	7439-89-6	
Magnesium	**24900**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 17:14	7439-95-4	
Manganese	**979**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 17:14	7439-96-5	
Potassium	**4220**	ug/L	500	146	1	11/22/21 16:33	11/30/21 17:14	7440-09-7	
Sodium	**9430**	ug/L	500	254	1	11/22/21 16:33	11/30/21 17:14	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**332**	mg/L	2.0	2.0	1		11/12/21 11:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**547**	mg/L	10.0	10.0	1		11/11/21 08:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.5**	mg/L	1.0	0.39	1		11/18/21 18:43	16887-00-6	B
Fluoride	**0.18J**	mg/L	0.20	0.086	1		11/18/21 18:43	16984-48-8	
Sulfate	**114**	mg/L	20.0	8.4	20		11/18/21 18:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-2S **Lab ID: 60385386005** Collected: 11/02/21 12:20 Received: 11/03/21 03:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron	**3180**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 17:05	7440-42-8	
Calcium	**68700**	ug/L	200	75.4	1	11/22/21 16:33	11/30/21 17:05	7440-70-2	
Iron	**<21.4**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 17:05	7439-89-6	
Magnesium	**87.0**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 17:05	7439-95-4	
Manganese	**1.0J**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 17:05	7439-96-5	
Potassium	**9350**	ug/L	500	146	1	11/22/21 16:33	11/30/21 17:05	7440-09-7	
Sodium	**66300**	ug/L	500	254	1	11/22/21 16:33	11/30/21 17:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**30.9**	mg/L	2.0	2.0	1		11/10/21 10:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**473**	mg/L	10.0	10.0	1		11/09/21 09:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**17.8**	mg/L	1.0	0.39	1		11/19/21 21:01	16887-00-6	
Fluoride	**0.15J**	mg/L	0.20	0.086	1		11/19/21 21:01	16984-48-8	
Sulfate	**255**	mg/L	20.0	8.4	20		11/19/21 21:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-4S **Lab ID: 60385386012** Collected: 11/03/21 12:00 Received: 11/06/21 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	**8060**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 17:16	7440-42-8	
Calcium	**131000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 14:11	7440-70-2	
Iron	**8510**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 17:16	7439-89-6	
Magnesium	**25500**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 17:16	7439-95-4	
Manganese	**1690**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 17:16	7439-96-5	
Potassium	**6880**	ug/L	500	146	1	11/22/21 16:33	11/30/21 17:16	7440-09-7	
Sodium	**91300**	ug/L	500	254	1	11/22/21 16:33	11/30/21 17:16	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**344**	mg/L	2.0	2.0	1		11/12/21 11:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**722**	mg/L	10.0	10.0	1		11/10/21 14:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.8**	mg/L	5.0	1.9	5		11/18/21 19:23	16887-00-6	B
Fluoride	**0.25**	mg/L	0.20	0.086	1		11/18/21 19:10	16984-48-8	
Sulfate	**208**	mg/L	20.0	8.4	20		11/18/21 19:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-7S **Lab ID: 60385386013** Collected: 11/05/21 11:47 Received: 11/06/21 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	**7540**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 17:18	7440-42-8	
Calcium	**181000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 14:14	7440-70-2	
Iron	**2820**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 17:18	7439-89-6	
Magnesium	**37100**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 17:18	7439-95-4	
Manganese	**1570**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 17:18	7439-96-5	
Potassium	**7320**	ug/L	500	146	1	11/22/21 16:33	11/30/21 17:18	7440-09-7	
Sodium	**48700**	ug/L	500	254	1	11/22/21 16:33	11/30/21 17:18	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**416**	mg/L	2.0	2.0	1		11/12/21 11:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**799**	mg/L	10.0	10.0	1		11/11/21 08:07		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**18.6**	mg/L	1.0	0.39	1		11/18/21 19:50	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.086	1		11/18/21 19:50	16984-48-8	
Sulfate	**215**	mg/L	20.0	8.4	20		11/18/21 20:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN LCPB
Pace Project No.: 60385390

Sample: L-LMW-8S **Lab ID: 60385386014** Collected: 11/05/21 12:48 Received: 11/06/21 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	**4990**	ug/L	100	8.6	1	11/22/21 16:33	11/30/21 17:20	7440-42-8	
Calcium	**169000**	ug/L	2000	754	10	11/22/21 16:33	12/01/21 14:16	7440-70-2	
Iron	**4230**	ug/L	50.0	21.4	1	11/22/21 16:33	11/30/21 17:20	7439-89-6	
Magnesium	**29000**	ug/L	50.0	31.4	1	11/22/21 16:33	11/30/21 17:20	7439-95-4	
Manganese	**2030**	ug/L	5.0	0.74	1	11/22/21 16:33	11/30/21 17:20	7439-96-5	
Potassium	**6360**	ug/L	500	146	1	11/22/21 16:33	11/30/21 17:20	7440-09-7	
Sodium	**63700**	ug/L	500	254	1	11/22/21 16:33	11/30/21 17:20	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis								
Alkalinity, Total as CaCO3	**249**	mg/L	2.0	2.0	1		11/12/21 11:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	**850**	mg/L	10.0	10.0	1		11/11/21 08:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**12.0**	mg/L	1.0	0.39	1		11/18/21 20:17	16887-00-6	
Fluoride	**0.43**	mg/L	0.20	0.086	1		11/18/21 20:17	16984-48-8	
Sulfate	**383**	mg/L	50.0	21.0	50		11/19/21 12:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755005
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: 60385390001

METHOD BLANK: 3021597 Matrix: Water
Associated Lab Samples: 60385390001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	11/10/21 12:51	
Calcium	ug/L	<75.4	200	75.4	11/10/21 12:51	
Iron	ug/L	<21.4	50.0	21.4	11/10/21 16:17	
Magnesium	ug/L	<31.4	50.0	31.4	11/10/21 16:17	
Manganese	ug/L	<0.74	5.0	0.74	11/10/21 12:51	
Potassium	ug/L	<146	500	146	11/10/21 16:17	
Sodium	ug/L	566	500	254	11/10/21 16:17	P8

LABORATORY CONTROL SAMPLE: 3021598

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	886	89	85-115	
Calcium	ug/L	10000	9670	97	85-115	
Iron	ug/L	10000	9820	98	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	924	92	85-115	
Potassium	ug/L	10000	9540	95	85-115	
Sodium	ug/L	10000	10800	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3021599 3021600

Parameter	Units	60385390001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	51.6J	1000	1000	989	971	94	92	70-130	2	20	
Calcium	ug/L	137000	10000	10000	144000	138000	70	14	70-130	4	20	
Iron	ug/L	49.3J	10000	10000	10300	10100	103	100	70-130	2	20	
Magnesium	ug/L	13000	10000	10000	22900	23300	100	103	70-130	1	20	
Manganese	ug/L	6.1	1000	1000	972	953	97	95	70-130	2	20	
Potassium	ug/L	3630	10000	10000	13500	13200	99	96	70-130	2	20	
Sodium	ug/L	15400	10000	10000	25200	25000	98	96	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 756726
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: 60385390002, 60385390003, 60385390004, 60385390005

METHOD BLANK: 3028135 Matrix: Water
Associated Lab Samples: 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	11/19/21 10:51	
Calcium	ug/L	<75.4	200	75.4	11/19/21 10:51	
Iron	ug/L	<21.4	50.0	21.4	11/19/21 10:51	
Magnesium	ug/L	<31.4	50.0	31.4	11/19/21 10:51	
Manganese	ug/L	<0.74	5.0	0.74	11/19/21 10:51	
Potassium	ug/L	<146	500	146	11/19/21 10:51	
Sodium	ug/L	<254	500	254	11/19/21 10:51	

LABORATORY CONTROL SAMPLE: 3028136

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	998	100	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3028137 3028138

Parameter	Units	60385390002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	4040	1000	1000	5020	5130	98	110	70-130	2	20	
Calcium	ug/L	95500	10000	10000	112000	116000	168	208	70-130	4	20	M1
Iron	ug/L	8070	10000	10000	17900	18000	98	99	70-130	1	20	
Magnesium	ug/L	11400	10000	10000	20500	20900	90	95	70-130	2	20	
Manganese	ug/L	814	1000	1000	1780	1820	97	100	70-130	2	20	
Potassium	ug/L	7400	10000	10000	17400	17600	100	102	70-130	1	20	
Sodium	ug/L	101000	10000	10000	110000	112000	99	116	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 757956
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: 60385386002, 60385386003, 60385386005, 60385386011, 60385386012, 60385386013, 60385386014

METHOD BLANK: 3033339 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005, 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<8.6	100	8.6	11/30/21 16:44	
Calcium	ug/L	<75.4	200	75.4	11/30/21 16:44	
Iron	ug/L	<21.4	50.0	21.4	11/30/21 16:44	
Magnesium	ug/L	<31.4	50.0	31.4	11/30/21 16:44	
Manganese	ug/L	<0.74	5.0	0.74	11/30/21 16:44	
Potassium	ug/L	<146	500	146	11/30/21 16:44	
Sodium	ug/L	<254	500	254	11/30/21 16:44	

LABORATORY CONTROL SAMPLE: 3033340

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	957	96	85-115	
Calcium	ug/L	10000	9800	98	85-115	
Iron	ug/L	10000	9780	98	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	979	98	85-115	
Potassium	ug/L	10000	9720	97	85-115	
Sodium	ug/L	10000	9980	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3033341 3033342

Parameter	Units	60385386004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	7500	1000	1000	8410	8280	91	77	70-130	2	20	
Calcium	ug/L	120000	10000	10000	128000	127000	87	74	70-130	1	20	
Iron	ug/L	5620	10000	10000	15700	15400	100	98	70-130	2	20	
Magnesium	ug/L	15500	10000	10000	25200	24800	96	93	70-130	1	20	
Manganese	ug/L	305	1000	1000	1300	1290	99	98	70-130	1	20	
Potassium	ug/L	8650	10000	10000	18800	18300	102	96	70-130	3	20	
Sodium	ug/L	121000	10000	10000	129000	127000	86	61	70-130	2	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3033343 3033344

Parameter	Units	60385386016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	68.7J	1000	1000	1060	1060	99	99	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3033343 3033344

Parameter	Units	60385386016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	146000	10000	10000	158000	155000	123	95	70-130	2	20	
Iron	ug/L	43.7J	10000	10000	10200	10200	101	101	70-130	0	20	
Magnesium	ug/L	26300	10000	10000	36000	35900	97	96	70-130	0	20	
Manganese	ug/L	464	1000	1000	1490	1490	102	103	70-130	0	20	
Potassium	ug/L	4310	10000	10000	14500	14500	102	101	70-130	0	20	
Sodium	ug/L	6070	10000	10000	16400	16400	103	104	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 649386
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 60385386002, 60385386003, 60385386005

METHOD BLANK: 2992253 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	2.0	2.0	11/10/21 10:58	

LABORATORY CONTROL SAMPLE: 2992254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	49.1	98	90-110	

SAMPLE DUPLICATE: 2992255

Parameter	Units	60385386004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	152	154	1	20	

SAMPLE DUPLICATE: 2992256

Parameter	Units	50301936001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	687	690	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 650017 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 60385390001, 60385390002, 60385390003, 60385390004, 60385390005

METHOD BLANK: 2995888 Matrix: Water
Associated Lab Samples: 60385390001, 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	2.0	2.0	11/12/21 11:45	

LABORATORY CONTROL SAMPLE: 2995889

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	51.5	103	90-110	

SAMPLE DUPLICATE: 2995890

Parameter	Units	60385390001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	378	385	2	20	

SAMPLE DUPLICATE: 2995891

Parameter	Units	50302276001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	283	290	2	20	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 650018 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

METHOD BLANK: 2995900 Matrix: Water
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	2.0	2.0	11/12/21 11:19	

LABORATORY CONTROL SAMPLE: 2995901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	48.5	97	90-110	

SAMPLE DUPLICATE: 2995902

Parameter	Units	60385386016 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	390	400	2	20	

SAMPLE DUPLICATE: 2995903

Parameter	Units	60385386023 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	188	190	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755000 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60385386002, 60385386003, 60385386005, 60385390001

METHOD BLANK: 3021558 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005, 60385390001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/09/21 09:43	

LABORATORY CONTROL SAMPLE: 3021559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	960	96	80-120	

SAMPLE DUPLICATE: 3021560

Parameter	Units	60385384001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	617	609	1	10	

SAMPLE DUPLICATE: 3021561

Parameter	Units	60385386004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	790	838	6	10	

SAMPLE DUPLICATE: 3021562

Parameter	Units	60385390001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	423	431	2	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755409
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60385386012, 60385390002, 60385390005

METHOD BLANK: 3023062 Matrix: Water
Associated Lab Samples: 60385386012, 60385390002, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/10/21 14:30	

LABORATORY CONTROL SAMPLE: 3023063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	949	95	80-120	

SAMPLE DUPLICATE: 3023064

Parameter	Units	60385386023 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	561	612	9	10	

SAMPLE DUPLICATE: 3023065

Parameter	Units	60385384012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	631	655	4	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755548
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60385386011, 60385390003, 60385390004

METHOD BLANK: 3023486 Matrix: Water
Associated Lab Samples: 60385386011, 60385390003, 60385390004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/11/21 08:03	

LABORATORY CONTROL SAMPLE: 3023487

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

SAMPLE DUPLICATE: 3023488

Parameter	Units	60385385001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4870	4660	4	10	

SAMPLE DUPLICATE: 3023489

Parameter	Units	60385386016 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	490	497	1	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755549
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60385386013, 60385386014

METHOD BLANK: 3023490 Matrix: Water
Associated Lab Samples: 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/11/21 08:06	

LABORATORY CONTROL SAMPLE: 3023491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	978	98	80-120	

SAMPLE DUPLICATE: 3023492

Parameter	Units	60385386013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	799	812	2	10	

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 754910
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: 60385390001

METHOD BLANK: 3021289 Matrix: Water
Associated Lab Samples: 60385390001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/09/21 08:18	
Fluoride	mg/L	<0.086	0.20	0.086	11/09/21 08:18	
Sulfate	mg/L	<0.42	1.0	0.42	11/09/21 08:18	

METHOD BLANK: 3023367 Matrix: Water
Associated Lab Samples: 60385390001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/10/21 10:55	
Fluoride	mg/L	<0.086	0.20	0.086	11/10/21 10:55	
Sulfate	mg/L	<0.42	1.0	0.42	11/10/21 10:55	

METHOD BLANK: 3024794 Matrix: Water
Associated Lab Samples: 60385390001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/11/21 08:00	
Fluoride	mg/L	<0.086	0.20	0.086	11/11/21 08:00	
Sulfate	mg/L	<0.42	1.0	0.42	11/11/21 08:00	

LABORATORY CONTROL SAMPLE: 3021290

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	2.4	95	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 3023368

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	2.5	99	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

LABORATORY CONTROL SAMPLE: 3024795

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Fluoride	mg/L	2.5	2.7	110	90-110	
Sulfate	mg/L	5	5.4	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3021291 3021292

Parameter	Units	60384827002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	39.7	25	25	61.1	59.9	86	81	80-120	2	15	
Fluoride	mg/L	ND	12.5	12.5	11.5	11.1	92	89	80-120	4	15	
Sulfate	mg/L	6.3	25	25	28.5	27.4	89	84	80-120	4	15	

MATRIX SPIKE SAMPLE: 3021293

Parameter	Units	60385227008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7200	5000	12000	95	80-120	
Fluoride	mg/L	2.6	12.5	16.5	111	80-120	
Sulfate	mg/L	1520	500	2100	117	80-120	E

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3021294 3021295

Parameter	Units	60385390001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.6	5	5	8.2	8.1	93	90	80-120	2	15	
Fluoride	mg/L	0.19J	2.5	2.5	2.7	2.6	101	96	80-120	4	15	
Sulfate	mg/L	11.8	5	5	17.1	17.0	105	102	80-120	1	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 755800
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: 60385390002, 60385390003, 60385390004, 60385390005

METHOD BLANK: 3024479 Matrix: Water
Associated Lab Samples: 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.52J	1.0	0.39	11/12/21 19:10	
Fluoride	mg/L	<0.086	0.20	0.086	11/12/21 19:10	
Sulfate	mg/L	<0.42	1.0	0.42	11/12/21 19:10	

METHOD BLANK: 3026761 Matrix: Water
Associated Lab Samples: 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/13/21 15:27	
Fluoride	mg/L	<0.086	0.20	0.086	11/13/21 15:27	
Sulfate	mg/L	<0.42	1.0	0.42	11/13/21 15:27	

METHOD BLANK: 3027907 Matrix: Water
Associated Lab Samples: 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/15/21 08:30	
Fluoride	mg/L	<0.086	0.20	0.086	11/15/21 08:30	
Sulfate	mg/L	<0.42	1.0	0.42	11/15/21 08:30	

METHOD BLANK: 3029161 Matrix: Water
Associated Lab Samples: 60385390002, 60385390003, 60385390004, 60385390005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.45J	1.0	0.39	11/16/21 08:04	
Fluoride	mg/L	<0.086	0.20	0.086	11/16/21 08:04	
Sulfate	mg/L	<0.42	1.0	0.42	11/16/21 08:04	

LABORATORY CONTROL SAMPLE: 3024480

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

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

LABORATORY CONTROL SAMPLE: 3024480

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

LABORATORY CONTROL SAMPLE: 3026762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 3027908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

LABORATORY CONTROL SAMPLE: 3029162

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	2.7	108	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

MATRIX SPIKE SAMPLE: 3024481

Parameter	Units	60385444005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	157	50	215	115	80-120	E
Fluoride	mg/L	ND	25	26.9	108	80-120	
Sulfate	mg/L	63.6	50	115	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3024482 3024483

Parameter	Units	60385444013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	125	50	50	198	192	145	133	80-120	3	15	M1
Fluoride	mg/L	ND	25	25	30.6	30.9	122	123	80-120	1	15	M1
Sulfate	mg/L	110	50	50	181	175	141	130	80-120	3	15	M1

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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.: 60385390

SAMPLE DUPLICATE: 3024484

Parameter	Units	60385444013 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	125	127	1	15	
Fluoride	mg/L	ND	<0.86		15	
Sulfate	mg/L	110	112	1	15	

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REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

QC Batch: 757095
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: 60385386011, 60385386012, 60385386013, 60385386014

METHOD BLANK: 3029711 Matrix: Water
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/18/21 06:44	
Fluoride	mg/L	<0.086	0.20	0.086	11/18/21 06:44	
Sulfate	mg/L	<0.42	1.0	0.42	11/18/21 06:44	

METHOD BLANK: 3030649 Matrix: Water
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/18/21 09:37	
Fluoride	mg/L	<0.086	0.20	0.086	11/18/21 09:37	
Sulfate	mg/L	<0.42	1.0	0.42	11/18/21 09:37	

METHOD BLANK: 3032082 Matrix: Water
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/19/21 06:45	
Fluoride	mg/L	<0.086	0.20	0.086	11/19/21 06:45	
Sulfate	mg/L	<0.42	1.0	0.42	11/19/21 06:45	

METHOD BLANK: 3032286 Matrix: Water
Associated Lab Samples: 60385386011, 60385386012, 60385386013, 60385386014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.79J	1.0	0.39	11/20/21 13:49	
Fluoride	mg/L	<0.086	0.20	0.086	11/20/21 13:49	
Sulfate	mg/L	<0.42	1.0	0.42	11/20/21 13:49	

LABORATORY CONTROL SAMPLE: 3029712

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

LABORATORY CONTROL SAMPLE: 3029712

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.4	108	90-110	

LABORATORY CONTROL SAMPLE: 3030650

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.5	109	90-110	

LABORATORY CONTROL SAMPLE: 3032083

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	104	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

LABORATORY CONTROL SAMPLE: 3032287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	107	90-110	
Fluoride	mg/L	2.5	2.7	106	90-110	
Sulfate	mg/L	5	5.4	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3029713 3029714

Parameter	Units	60385386016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.2	5	5	11.1	11.2	96	99	80-120	1	15	
Fluoride	mg/L	0.24	2.5	2.5	2.8	2.9	103	106	80-120	3	15	
Sulfate	mg/L	29.3	25	25	53.9	53.8	98	98	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3029715 3029716

Parameter	Units	60385386023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.9	10	10	29.5	30.0	105	110	80-120	2	15	
Fluoride	mg/L	0.36	5	5	5.5	5.8	103	108	80-120	4	15	
Sulfate	mg/L	246	100	100	354	344	107	98	80-120	3	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.: 60385390

QC Batch: 757277
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: 60385386002, 60385386003, 60385386005

METHOD BLANK: 3030419 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/19/21 06:45	
Fluoride	mg/L	<0.086	0.20	0.086	11/19/21 06:45	
Sulfate	mg/L	<0.42	1.0	0.42	11/19/21 06:45	

METHOD BLANK: 3032423 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/21/21 17:33	
Fluoride	mg/L	<0.086	0.20	0.086	11/21/21 17:33	
Sulfate	mg/L	<0.42	1.0	0.42	11/21/21 17:33	

METHOD BLANK: 3034763 Matrix: Water
Associated Lab Samples: 60385386002, 60385386003, 60385386005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.45J	1.0	0.39	11/22/21 21:29	
Fluoride	mg/L	<0.086	0.20	0.086	11/22/21 21:29	
Sulfate	mg/L	<0.42	1.0	0.42	11/22/21 21:29	

LABORATORY CONTROL SAMPLE: 3030420

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	104	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

LABORATORY CONTROL SAMPLE: 3032424

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	110	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN LCPB
Pace Project No.: 60385390

LABORATORY CONTROL SAMPLE: 3034764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3030421 3030422

Parameter	Units	60385384001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	11.1	5	5	15.9	16.2	96	101	80-120	2	15	
Fluoride	mg/L	0.21	2.5	2.5	2.5	2.6	92	97	80-120	5	15	
Sulfate	mg/L	39.2	25	25	62.9	63.1	95	96	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3030424 3030423

Parameter	Units	60385386004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	44.8	25	25	71.5	71.6	107	107	80-120	0	15	
Fluoride	mg/L	0.32	2.5	2.5	2.6	2.7	93	94	80-120	1	15	
Sulfate	mg/L	377	250	250	640	636	105	104	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3030425 3030426

Parameter	Units	60386286007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	19.4	10	10	30.2	30.1	108	108	80-120	0	15	
Fluoride	mg/L	ND	2.5	2.5	2.8	2.8	110	111	80-120	1	15	
Sulfate	mg/L	53.9	5	5	59.8	59.9	118	119	80-120	0	15	E

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN LCPB
Pace Project No.: 60385390

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
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.
P8	Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

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.: 60385390

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60385386002	L-BMW-1S	EPA 200.7	757956	EPA 200.7	758020
60385386003	L-BMW-2S	EPA 200.7	757956	EPA 200.7	758020
60385386005	L-LMW-2S	EPA 200.7	757956	EPA 200.7	758020
60385390001	L-LMW-5S	EPA 200.7	755005	EPA 200.7	755084
60385386011	L-LMW-1S	EPA 200.7	757956	EPA 200.7	758020
60385386012	L-LMW-4S	EPA 200.7	757956	EPA 200.7	758020
60385386013	L-LMW-7S	EPA 200.7	757956	EPA 200.7	758020
60385386014	L-LMW-8S	EPA 200.7	757956	EPA 200.7	758020
60385390002	L-LMW-3S	EPA 200.7	756726	EPA 200.7	756850
60385390003	L-LMW-FB-1	EPA 200.7	756726	EPA 200.7	756850
60385390004	L-LMW-6S	EPA 200.7	756726	EPA 200.7	756850
60385390005	L-LMW-DUP-1	EPA 200.7	756726	EPA 200.7	756850
60385386002	L-BMW-1S	EPA 903.1	475154		
60385386003	L-BMW-2S	EPA 903.1	475154		
60385386005	L-LMW-2S	EPA 903.1	475154		
60385386011	L-LMW-1S	EPA 903.1	475154		
60385386012	L-LMW-4S	EPA 903.1	475154		
60385386013	L-LMW-7S	EPA 903.1	475154		
60385386014	L-LMW-8S	EPA 903.1	475154		
60385386002	L-BMW-1S	EPA 904.0	475155		
60385386003	L-BMW-2S	EPA 904.0	475155		
60385386005	L-LMW-2S	EPA 904.0	475155		
60385386011	L-LMW-1S	EPA 904.0	475155		
60385386012	L-LMW-4S	EPA 904.0	475155		
60385386013	L-LMW-7S	EPA 904.0	475155		
60385386014	L-LMW-8S	EPA 904.0	475155		
60385386002	L-BMW-1S	SM 2320B	649386		
60385386003	L-BMW-2S	SM 2320B	649386		
60385386005	L-LMW-2S	SM 2320B	649386		
60385390001	L-LMW-5S	SM 2320B	650017		
60385386011	L-LMW-1S	SM 2320B	650018		
60385386012	L-LMW-4S	SM 2320B	650018		
60385386013	L-LMW-7S	SM 2320B	650018		
60385386014	L-LMW-8S	SM 2320B	650018		
60385390002	L-LMW-3S	SM 2320B	650017		
60385390003	L-LMW-FB-1	SM 2320B	650017		
60385390004	L-LMW-6S	SM 2320B	650017		
60385390005	L-LMW-DUP-1	SM 2320B	650017		
60385386002	L-BMW-1S	SM 2540C	755000		
60385386003	L-BMW-2S	SM 2540C	755000		
60385386005	L-LMW-2S	SM 2540C	755000		
60385390001	L-LMW-5S	SM 2540C	755000		
60385386011	L-LMW-1S	SM 2540C	755548		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN LCPB
Pace Project No.: 60385390

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60385386012	**L-LMW-4S**	SM 2540C	755409		
60385386013	**L-LMW-7S**	SM 2540C	755549		
60385386014	**L-LMW-8S**	SM 2540C	755549		
60385390002	**L-LMW-3S**	SM 2540C	755409		
60385390003	**L-LMW-FB-1**	SM 2540C	755548		
60385390004	**L-LMW-6S**	SM 2540C	755548		
60385390005	**L-LMW-DUP-1**	SM 2540C	755409		
60385386002	**L-BMW-1S**	EPA 300.0	757277		
60385386003	**L-BMW-2S**	EPA 300.0	757277		
60385386005	**L-LMW-2S**	EPA 300.0	757277		
60385390001	**L-LMW-5S**	EPA 300.0	754910		
60385386011	**L-LMW-1S**	EPA 300.0	757095		
60385386012	**L-LMW-4S**	EPA 300.0	757095		
60385386013	**L-LMW-7S**	EPA 300.0	757095		
60385386014	**L-LMW-8S**	EPA 300.0	757095		
60385390002	**L-LMW-3S**	EPA 300.0	755800		
60385390003	**L-LMW-FB-1**	EPA 300.0	755800		
60385390004	**L-LMW-6S**	EPA 300.0	755800		
60385390005	**L-LMW-DUP-1**	EPA 300.0	755800		

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Sample Condition Upon Receipt

WO# : 60385390

60385390

Client Name: Golder Associates

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

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

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

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

Thermometer Used: T-299 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 2.5/2.2/1.6 Corr. Factor -0.2 Corrected 2.3/2.0/1.4

Temperature should be above freezing to 6°C 11.4/13.1 11.2/12.9

Date and initials of person examining contents: pv 11/8/21

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 1:31 pm, 11/8/21

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren LCPB
Project Number:	153-140603.0001B (COC #3)

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES | GROUND WATER | DRINKING WATER

UST | RCRA | OTHER

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N		60385390
1	L-LMW-MS-1	WT	G			11/2/21	1520		2	1		1												
2	L-LMW-MSD-1	WT	G				1520		2	1		1												
3	L-LMW-25	WT	G				1220		2	1		1												MS/MSD taken @ L-MW-5S
4	L-LMW-5S	WT	G				1520		2	1		1								3BP3N	3BP1U			
5	~~L-BMW-1S~~ L-BMW-1S	WT	G			11/1/21	1210		2	1		1												
6	L-BMW-2S	WT	G			11/1/21	1340		2	1		1												
7		WT	G																					
8		WT	G																					
9		WT	G																					
10		WT	G																					
11		WT	G																					
12		WT	G																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Golder	11/2/21	1715	Angela Lyman	11/3	8am					
	Angela Lyman	11/3	8am		11/3/21	0348	2.9	Y	Y	Y	
							2.0				
							1.4				
							1.2				
							2.9	↓	↓	↓	
							Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 11/2/2021

Pace Analytical
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Sample Condition Upon Receipt

WO# : 60385390

60385390

Client Name: COLDER ASSOCIATES

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

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

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

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

Thermometer Used: T219 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 1.1, 1.8, 15.7 Corr. Factor -0.2 Corrected 0.9, 1.6, 15.5, 0.4, 14.2, 15.0, 7.9

Date and initials of person examining contents: SR 11/6/21

Temperature should be above freezing to 6°C 0.6, 14.2, 15.2, 13.1

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	TDS 11/10
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	All coolers out of temp had only Radium
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# 6003173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 11:34 am, 11/10/21

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Jeffrey Ingram	Attention:	
Address:	13515 Barrett Parkway Drive, Ste 260	Copy To:	Ryan Feldmann/Eric Schneider	Company Name:	
	Ballwin, MO 63021			Address:	
Email To:	jeffrey_ingram@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	636-724-9191 Fax: 636-724-9323	Project Name:	Ameren LCPB	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-140603.0001B (COC #3)	Pace Profile #:	9285

REGULATORY AGENCY

NPDES / GROUND WATER DRINKING WATER

UST RCRA OTHER _____

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

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	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	L-LMW-MS-1	WT	G																				
2	L-LMW-MSD-1	WT	G																				
3	L-LMW-1S	WT	G			11-4-21	1055		2	1		1						Y	Y	Y	Y		60385390
4	L-LMW-3S	WT	G			11-3-21	1452		2	1		1						Y	Y	Y	Y		
5	~~L-LMW-DUP-2~~	WT	G																				
6	L-LMW-4S	WT	G			11-3-21	1200		2	1		1						Y	Y	Y	Y		
7	L-LMW-FB-1	WT	G			11-4-21	1119		1	1		1						Y	Y	Y	Y		
8	L-LMW-7S	WT	G			11-5-21	1147		1	1		1						Y	Y	Y	Y		
9	L-LMW-8S	WT	G			11-5-21	1248		1	1		1						Y	Y	Y	Y		
10	L-LMW-6S	WT	G			11-5-21	1044		1	1		1						Y	Y	Y	Y		
11	L-LMW-DUP-1	WT	G			11-3-21	—		2	1		1						Y	Y	Y	Y		
12		WT	G																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Sierra Shields/Golder	11/5/21	1520	Angela Mc	11/5	1530				
	Angela Mc	11/5	1530	[illegible]	11-6-21	0530	0.9	Y	Y	Y
							1.6			
							0.4			
							2.9			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Sierra Shields

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/5/21

GOLDER
MEMBER OF WSP

MEMORANDUM

DATE January 7, 2022 **Project No.** 153140603

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, LABADIE ENERGY CENTER – LCPB – DETECTION MONITORING - DATA PACKAGE 60385390

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren - LEC - LCPB
Project Number: 153140603
Reviewer: A. Muehlfarth
Validation Date: 1/7/2022

Laboratory: Pace Analytical
SDG #: 60385390
Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names L-LMW-5S, L-LMW-3S, L-LMW-FB-1, L-LMW-6S, L-LMW-DUP-1, L-BMW-1S, L-BMW-2S, L-LMW-1S, L-LMW-2S, L-LMW-4S, L-LMW-7S, L-LMW-8S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			11/1/2021 - 11/5/2021
b) Sampling team indicated?	x			ETF/SSS/EMS/BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			See Notes
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?	x			Max RPD: 9% [<10%]

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

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

Comments/Notes:

TDS was analyzed outside of hold time for samples L-BMW-1S, L-BMW-2S. Results qualified as estimates.

Calcium, magnesium, chloride, and sulfate analyzed at a dilution in multiple samples, no qualification necessary.

Blanks:

3021597: Sodium (566). Associated with sample 60385390001. Sample result >RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

3024479/3029161: Chloride (0.52J/0.45J). Associated with samples 60385390002 through 60385390005. Results >RL and 10x bank not qualified. When 10x blank > result > RL > qualified as estimate. Results <RL qualified as ND and reported at RL.

3032286: Chloride (0.79J). Associated with samples 60385386011 through 60385386014. Results >RL and 10x bank not qualified. When 10x blank > result > RL > qualified as estimate.

3034763: Chloride (0.45J). Associated with samples 60385386002, 60385386003, 60385386005. Results >RL and 10x bank not qualified. When 10x blank > result > RL > qualified as estimate.

L-LMW-FB-1 @ L-LMW-1S: Boron (18.9J), chloride (0.43J). Sample results >RL and 10x blank not qualified. Results >RL but <10x blank were qualified as estimates.

Duplicates:

L-LMW-DUP-1 @ L-LMW-3S: RPD for fluoride (104.8%) exceeds RPD limit (20%).

Laboratory analyzed sample duplicates for alkalinity, TDS, and anions.

MS/MSD:

3028137/3028138: MS/MSD % recovery high for calcium. Associated with sample L-LMW-3S.

3033341/3033342: MSD % recovery low for sodium. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
L-BMW-1S	TDS	953	J	Analyzed outside of hold time
L-BMW-2S	"	475	J	"
L-LMW-FB-1	Chloride	1.0	U	Detected in MB, RL > result > MDL
L-LMW-6S	"	3.6	J	Detected in MB, 10x blank > result > MDL
L-LMW-1S	"	2.5	J	"
L-BMW-2S	"	1.7	J	"
L-LMW-1S	"	2.5	J	"
L-LMW-3S	Fluoride	0.15	J	Duplicate RPD exceeds limit
L-LMW-DUP-1	"	0.48	J	"
L-LMW-3S	Calcium	95500	J+	MS/MSD % recovery high

Signature: Ann Muhlfarth Date: 1/7/2022

APPENDIX B

Alternative Source Demonstration - November 2020 Sampling Event

TECHNICAL MEMORANDUM

DATE June 9, 2021 **Project No.** 153140603

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

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G.

LCPB – ATERNATIVE SOURCE DEMONSTRATION – NOVEMBER 2020 SAMPLING EVENT

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), Golder Associates Inc. ("Golder") has prepared this Technical Memorandum that indicates Statistically Significant Increases (SSIs) calculated at Ameren Missouri's (Ameren) Labadie Energy Center (LEC) fly ash surface impoundment (LCPB) result from an alternative source. 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

In November 2017, the first round of Detection Monitoring was completed at the LEC's LCPB CCR Unit in Franklin County, Missouri. The November 2017 event was completed in accordance with the CCR Rule and SSIs were identified and verified. In February/March 2018, additional drilling and a detailed analysis of results were completed for the LCPB 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. Instead, the SSIs observed in LCPB wells were attributed to an alternative source that was determined to be the adjacent LCPA surface impoundment, as documented in previous ASDs. A copy of the ASD report for the November 2017 sampling event is provided in Appendix B of the 2018 LCPB Annual Groundwater Monitoring and Corrective Action Report.

3.0 NOVEMBER 2020 SAMPLING EVENT

A summary of the November 2020 sampling results can be found in **Table 1**. **Figure 1** of this Technical Memorandum displays a comparison of November 2020 LCPB CCR Rule groundwater monitoring well data to cation and anion data for the LCPA pore-water, LCPB pore-water, and background groundwater zones. As shown in this figure, the November 2020 LCPB monitoring well sample results primarily plot between the background groundwater quality and the LCPA pore-water on the piper diagram, which indicates that the impacts originate from LCPA and are mixing with groundwater as they migrate. Like the November 2017 Sampling Event ASD, results from this diagram demonstrate that groundwater quality in the monitoring wells around the LCPB is impacted by the LCPA and not the LCPB.

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

It should be noted that three monitoring wells plotted in locations different than past events and appeared to plot in the LCPB mixing zone. Further evaluation of these points identified that laboratory errors may have caused the apparent shift, and not a change in groundwater geochemistry. For instance, at LMW-3S and LMW-5S there appears to be a laboratory error for calcium. As displayed on **Figure 2**, calcium concentrations in November 2020 results appear to be outliers, at values much lower than previous results for the same wells. Subsequent sampling completed in April 2021 has confirmed that these results do not indicate a new trend and are outlier results. **Figure 3** displays a Piper diagram for the April 2021 sampling event. As shown on **Figure 3**, the February and April 2021 LCPB monitoring wells plot between the LCPA and background water quality. Therefore, the change in geochemical signature for the November 2020 sampling event appears to be from laboratory error, and not shifts in groundwater geochemical signature.

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

- Potentiometric surface mapping from 2018 to 2021 continue to show that while groundwater conditions can be variable, net groundwater flow is toward the north/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.
- The LCPB was constructed with an engineered liner system consisting of a 60-mil High Density Polyethylene (HDPE) geomembrane liner with a bottom elevation of approximately 460 feet above mean sea level (FT MSL) at its lowest point. The low permeability HDPE liner system in the LCPB is a barrier to CCR impact migration and provides containment for CCR.
- The LCPA was built in the early 1970s and has a bottom elevation estimated to be at approximately 410 FT MSL, which is much deeper than the LCPB. In addition to the different pore-water fingerprints, 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 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, which extends to deeper groundwater zones in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence all demonstrate that SSIs noted during the November 2020 Sampling Event for the LCPB CCR Unit were not caused by impacts from the LCPB surface impoundment but are a result of influence from the adjacent LCPA surface impoundment.

CERTIFICATION STATEMENT

This *LCPB – Alternative Source Demonstration – November 2020 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *LCPB – Alternative Source Demonstration – November 2020 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).

GOLDER ASSOCIATES INC.

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

Principal, Practice Leader

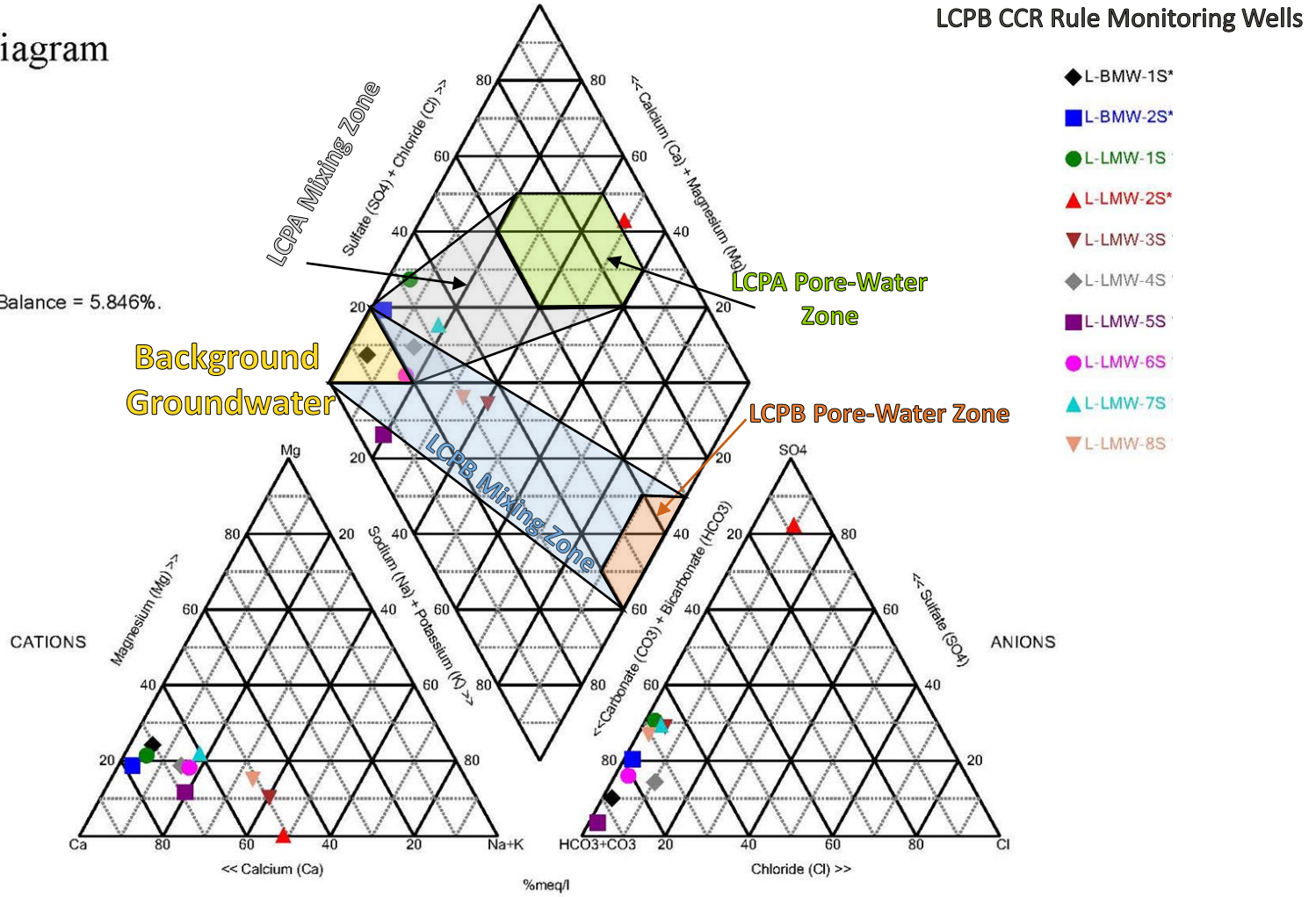
Table 1
November 2020 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

			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 2020 Detection Monitoring Event												
DATE	NA	NA	11/2/2020	11/2/2020	11/5/2020	11/5/2020	11/4/2020	11/4/2020	11/3/2020	11/5/2020	11/5/2020	11/5/2020
pH	SU	6.239-7.394	6.87	7.23	6.90	9.54	7.06	6.62	7.23	6.73	6.76	7.16
BORON, TOTAL	µg/L	147	99.0 J	45.2 J	4,390	3,150	3,840	3,120	62.0 J	3,900	7,010	2,570
CALCIUM, TOTAL	µg/L	219,000	216,000	142,000	158,000	61,900	127,000	183,000	78,200	156,000	173,000 J	70,800
CHLORIDE, TOTAL	mg/L	7.654	6.4	3.4	3.9	19.2	19.7	41.7	2.2	8.5	14.4	4.7
FLUORIDE, TOTAL	mg/L	0.2606	0.17 J	0.22	0.32	0.23	0.39	0.11 J	0.37	0.29	0.31	0.53
SULFATE, TOTAL	mg/L	75.37	66.5	73.4	142	243	158	83.5	7.6	82.0	176	80.4
TOTAL DISSOLVED SOLIDS	mg/L	792	780	524	635	445	754	717	296	669	808	440
January 2021 Verification Sampling Event												
DATE	NA	NA			1/6/2021		1/4/2021		1/4/2021	1/5/2021	1/5/2021	
pH	SU	6.239-7.394										
BORON, TOTAL	µg/L	147										
CALCIUM, TOTAL	µg/L	219000										
CHLORIDE, TOTAL	mg/L	7.654								8.0		
FLUORIDE, TOTAL	mg/L	0.2606			0.19 J		0.34		0.26		0.19 J	
SULFATE, TOTAL	mg/L	75.37								88.6 J		
TOTAL DISSOLVED SOLIDS	mg/L	792										

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

Prepared By: JSI
Checked By: EMS
Reviewed By: SCP

Piper Diagram

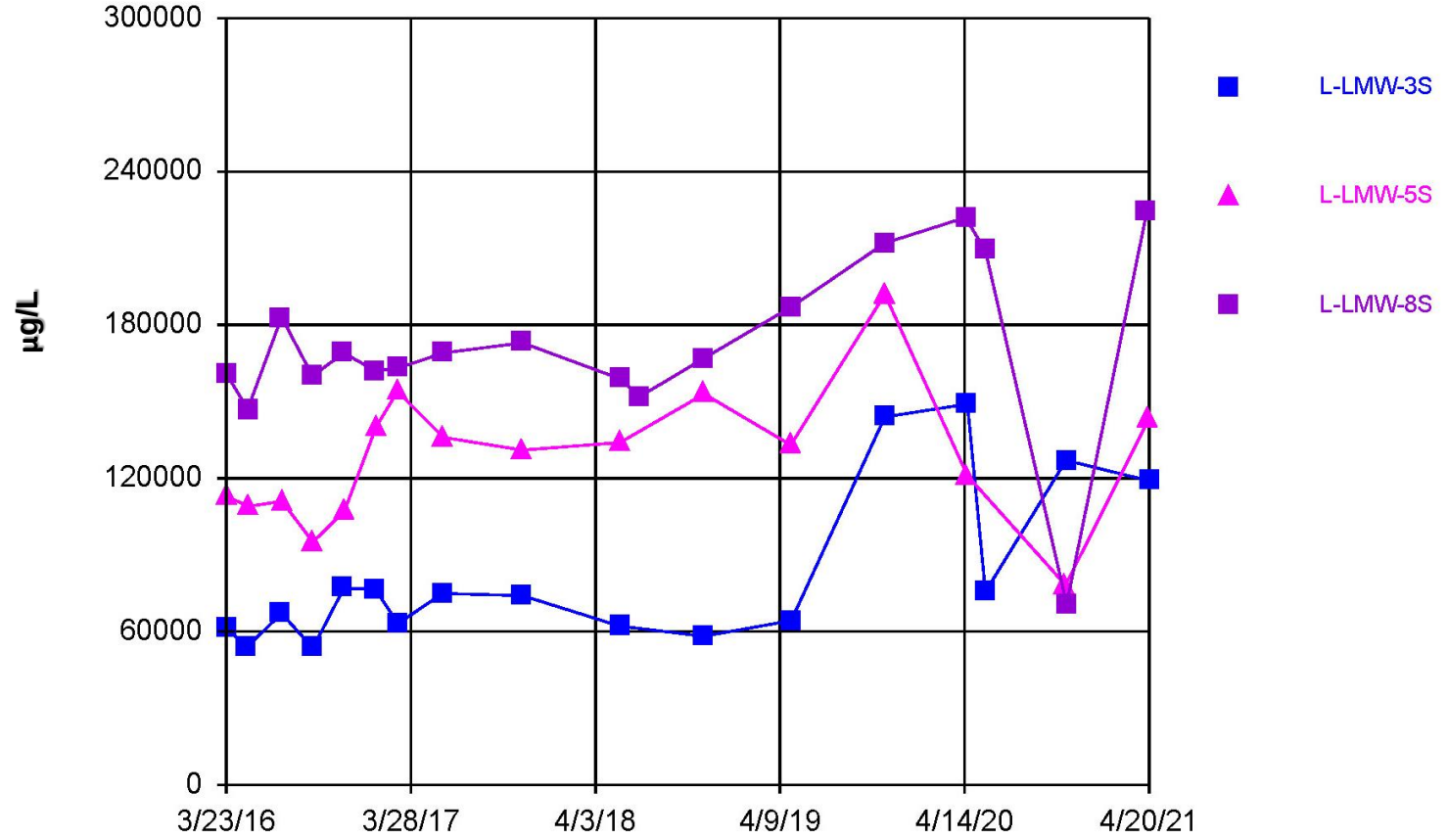


Notes

1) Piper diagram generated using Sanitas Software.
2) Data used to generate diagram available in LCPB Annual Reports.

CLIENT/PROJECT					TITLE					
AMEREN MISSOURI LABADIE LCPB ASD				GOLDER	**LCPB PIPER DIAGRAM FOR NOVEMBER 2020**					
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
EMS	BTT	MNH	2021/02/10	NA	NA	153-140603	NA	NA	0	1

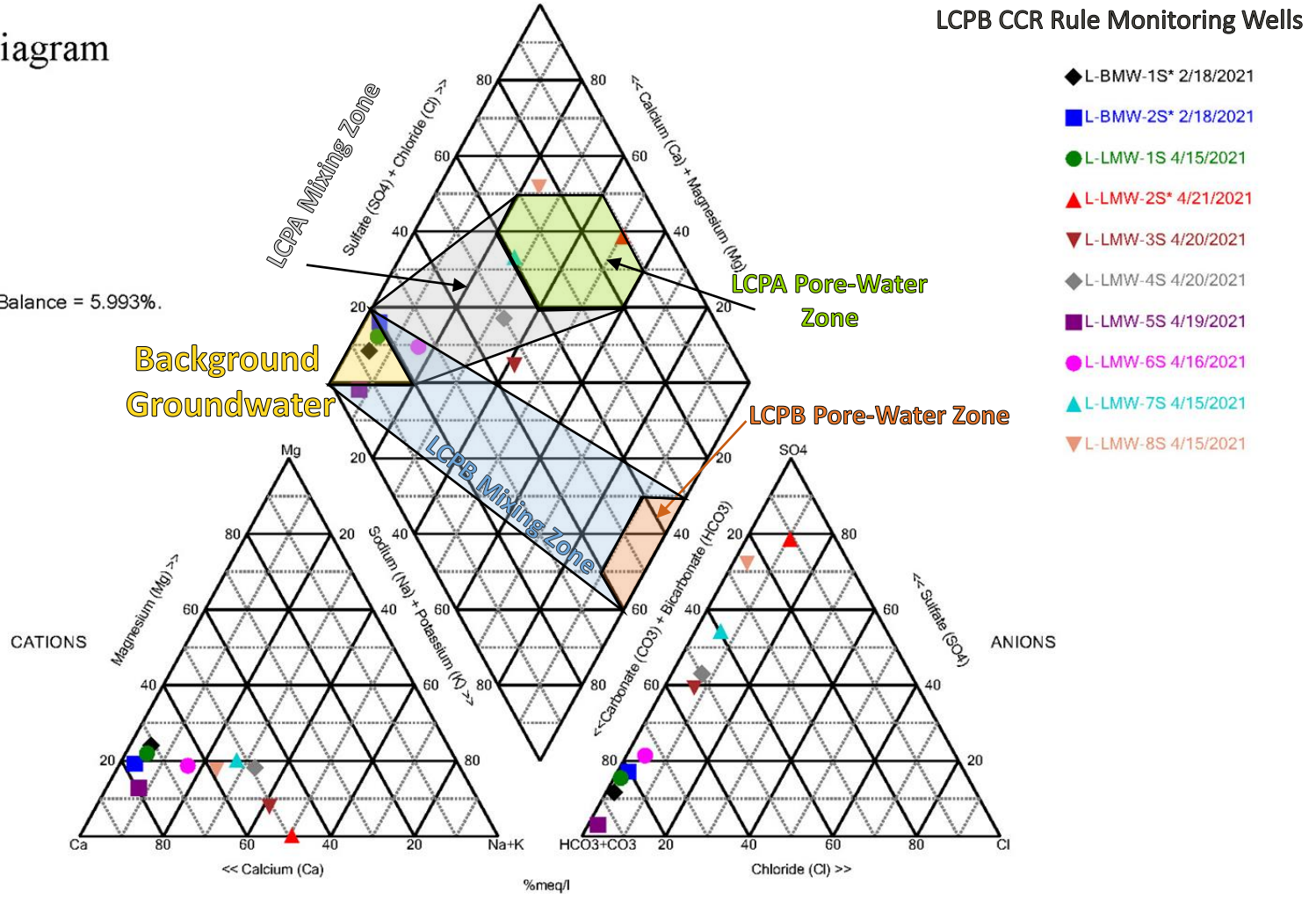
Time Series



Notes
1) Timeseries plot generated using Sanitas Software.
2) Data used to generate diagram available in LCPB Annual Reports.
3) µg/L – Micrograms per liter.

CLIENT/PROJECT					TITLE						
AMEREN MISSOURI LABADIE LCPB ASD				GOLDER	**CALCIUM TIMESERIES PLOT FOR LMW-3S, LMW-5S, and LMW-8S**						
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
JSI	RJF	MNH	2021/06/07	NA	NA	153-140603	NA	NA	0	2

Piper Diagram



Notes

1) Piper diagram generated using Sanitas Software.
2) Data used to generate diagram available in LCPB Annual Reports.

CLIENT/PROJECT					TITLE						
AMEREN MISSOURI LABADIE LCPB ASD				GOLDER	**LCPB PIPER DIAGRAM FOR FEBRUARY AND APRIL 2021**						
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
EMS	RJF	MNH	2021/06/07	NA	NA	153-140603	NA	NA	0	3

APPENDIX C

Alternative Source Demonstration - February - April 2021 Sampling Event

TECHNICAL MEMORANDUM

DATE November 29, 2021 **Project No.** 153140603

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

FROM Mark Haddock, P.E., R.G., Jeffrey Ingram, R.G.

LCPB – ALTERNATIVE SOURCE DEMONSTRATION – APRIL 2021 SAMPLING EVENT

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (CCR Rule or The Rule), Golder Associates USA Inc. ("Golder") has prepared this Technical Memorandum to show that Statistically Significant Increases (SSIs) identified at Ameren Missouri's (Ameren) 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 round of Detection Monitoring was completed during November 2017 at the LEC's LCPB CCR Unit in Franklin County, Missouri. This sampling was completed in accordance with the CCR Rule and SSIs were identified and verified. In February/March 2018, additional drilling and a detailed analysis of results were completed, 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. Based on the ASD, the SSIs observed in the LCPB wells were caused by the adjacent LCPA surface impoundment. A copy of the ASD report for the November 2017 sampling event is provided in Appendix B of the 2018 LCPB Annual Groundwater Monitoring and Corrective Action Report.

3.0 FEBRUARY-APRIL 2021 SAMPLING EVENT

A summary of the February-April 2021 sampling results is provided in **Table 1**. **Figure 1** of this Technical Memorandum is a Piper Diagram which displays a comparison of February and April 2021 LCPB CCR Rule groundwater monitoring well data to cation and anion data for the LCPA pore-water, LCPB pore-water, and background groundwater zones. As shown in **Figure 1**, and as expected, if the SSIs were a result of the LCPA, the February-April 2021 LCPB monitoring results would be expected to plot in and between the background groundwater quality (yellow triangle) and the LCPA pore-water (green hexagon) on the Piper diagram. The pattern shown in **Figure 1** indicates that the groundwater impacts from the LCPA are mixing with groundwater along the migration path and, thus, the LCPA is influencing groundwater quality at the LCPB, which is located hydraulically downgradient of the LCPA. As described in the ASD for the November 2017 Sampling Event, results

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

displayed in **Figure 1** continue to demonstrate that groundwater quality in the monitoring wells around the LCPB are impacted by the LCPA and not the LCPB.

Additional supporting lines of evidence from the previous ASDs are also applicable in this February-April 2021 Sampling Event ASD. A summary of these additional supporting lines of evidence is provided in the following bullets:

- Potentiometric surface mapping from 2018 to 2021 continue to show that while groundwater conditions can be variable, net groundwater flow is toward the north/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.
- 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 liquids and provides containment for CCR.
- The LCPA 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 different pore-water fingerprints between LCPA and 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, which extends to deeper groundwater zones in the aquifer.

In summary, groundwater chemistry, pore-water chemistry fingerprints, cell construction, and hydrogeological evidence all demonstrate that SSIs reported for the February-April 2021 Sampling Event for the LCPB CCR Unit were not caused by impacts from the LCPB surface impoundment, but the LCPA surface impoundment is the source of the LCPB SSIs.

CERTIFICATION STATEMENT

This *LCPB – Alternative Source Demonstration – April 2021 Sampling Event has* been prepared to comply with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *LCPB – Alternative Source Demonstration – April 2021 Sampling Event* located at 8501 Missouri 94, West Alton, Missouri 63386 has been prepared to meet the requirements of 40 CFR §257.94(e)(2).

Golder Associates Inc.

Mark Haddock, P.E., R.G.
Principal, Practice Leader
MNH

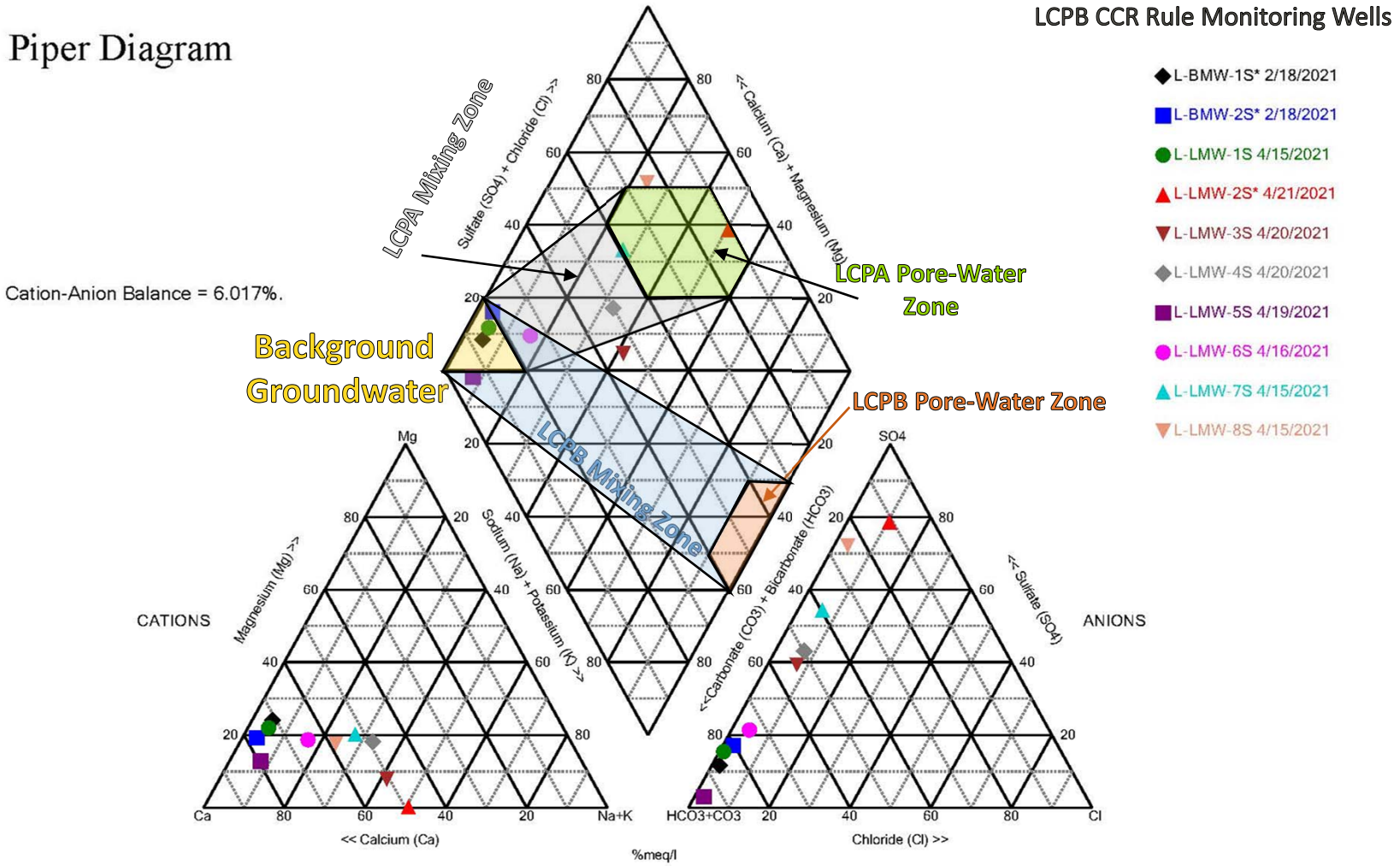
Table 1
February-April 2021 Detection Monitoring Results
LCPB Surface Impoundment
Labadie Energy Center, Franklin County, MO

			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
February - April 2021 Detection Monitoring Event												
DATE	NA	NA	2/18/2021	2/18/2021	4/15/2021	4/21/2021	4/20/2021	4/20/2021	4/19/2021	4/16/2021	4/15/2021	4/15/2021
pH	SU	6.239-7.394	6.73	7.16	7.03	9.38	7.33	7.07	7.08	6.93	6.88	7.08
BORON, TOTAL	µg/L	147	97.3 J	42.0 J	687	3,440	3,940	8,780	63.1 J	4,420	12,800	8,550
CALCIUM, TOTAL	µg/L	219,000	212,000	133,000	129,000	53,500	119,000	115,000	143,000	120,000	128,000	224,000
CHLORIDE, TOTAL	mg/L	7.654	5.1	4.0	1.9	19.0	22.8	25.4 J	3.4	10.1 J	21.8	18.0
FLUORIDE, TOTAL	mg/L	0.2606	ND	0.14 J	0.32	0.21	0.37	0.30	0.27	0.30 J	ND	ND
SULFATE, TOTAL	mg/L	75.37	70.4	60.6	53.7	199	192	225	11.6	83.9 J	294	604
TOTAL DISSOLVED SOLIDS	mg/L	792	792	483	542	402	358	392	496	607	812	1,270
June 2021 Verification Sampling Event												
DATE	NA	NA							6/7/2021			6/8/2021
pH	SU	6.239-7.394										
BORON, TOTAL	µg/L	147										
CALCIUM, TOTAL	µg/L	219,000										194,000
CHLORIDE, TOTAL	mg/L	7.654										16.2
FLUORIDE, TOTAL	mg/L	0.2606							0.19 J			
SULFATE, TOTAL	mg/L	75.37										
TOTAL DISSOLVED SOLIDS	mg/L	792										1,110

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. Values highlighted in green indicate an initial exceedance above the prediction limit that was not confirmed by Verification Sampling (not an SSI).
8. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.

Prepared By: EMS
Checked By: LMS
Reviewed By: SCP

Piper Diagram



Notes

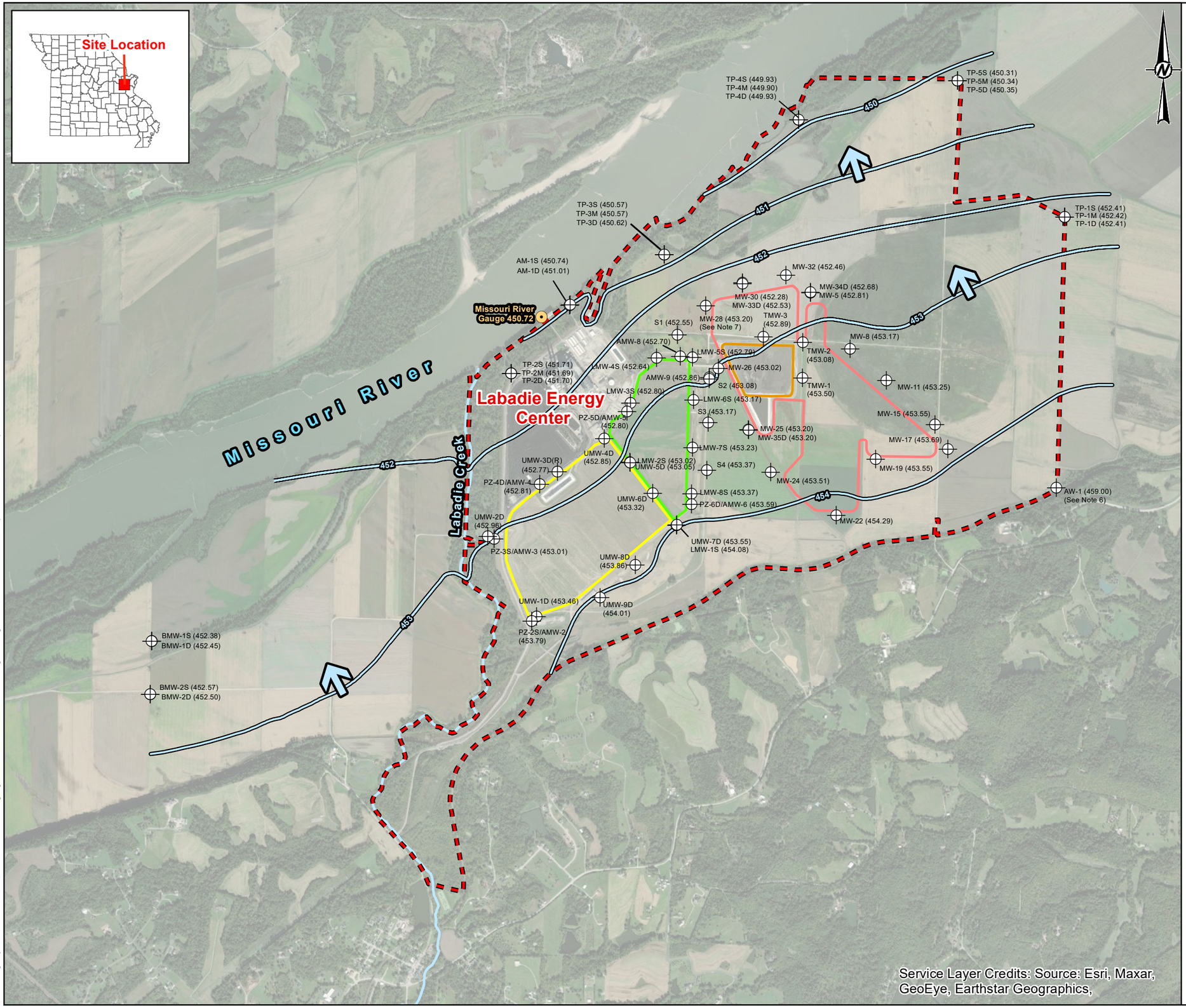
1) Piper diagram generated using Sanitas Software.
2) Data used to generate diagram available in LCPB Annual Reports.
3) %mEq/l – milliequivalents per liter.

CLIENT/PROJECT						TITLE				
AMEREN MISSOURI LABADIE LCPB ASD				GOLDER		**LCPB PIPER DIAGRAM FOR FEBRUARY - APRIL 2021**				
PREPARED	CHECKED	REVIEWED	DATE	SCALE	FILE NO.	PROJECT NO.	DRAWING NO.	SUBTITLE	REV. NO.	FIGURE
EMS	ANT	SCP	2021/11/11	NA	NA	153-140603	NA	NA	0	1

golder.com

APPENDIX D

2021 Potentiometric Surface Maps



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics,

LEGEND

- Labadie Energy Center Property Boundary

Utility Waste Landfill (UWL)

- Proposed Final UWL Fence Perimeter
- LCL1 - Utility Waste Landfill Cell 1

Surface Impoundments

- LCPA - Bottom Ash Surface Impoundment
- LCPB - Fly Ash Surface Impoundment

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 ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4. MISSOURI RIVER LEVEL OBTAINED FROM USGS LABADIE GAUGE 06935550.
5. THE UWL BOUNDARIES AND DESIGNATIONS ARE BASED ON AMEREN LABADIE CONSTRUCTION PERMIT APPLICATION DRAWINGS.
6. AW-1 WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING.
7. MW-28 WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERROR.

REFERENCES

1. ZAHNER AND ASSOCIATES, INC. 2016. LOT CONSOLIDATION PLAT OF "LABADIE ENERGY CENTER" - PREPARED FOR AMEREN MISSOURI. REVISED JUNE 15, 2016.
2. COORDINATE SYSTEM: NAD 1983 STATEPLANE MISSOURI EAST FIPS 2,401 FEET.
3. USGS (UNITED STATES GEOLOGICAL SURVEY), NATIONAL WATER INFORMATION SYSTEM, USGS GAUGE 06935550 MISSOURI RIVER NEAR LABADIE, MO.

0 1,000 2,000 3,000 4,000 5,000 6,000

Feet

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
JANUARY 4, 2021 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-01-27
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No. 153140603
PHASE 0001
FIGURE **D1**

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

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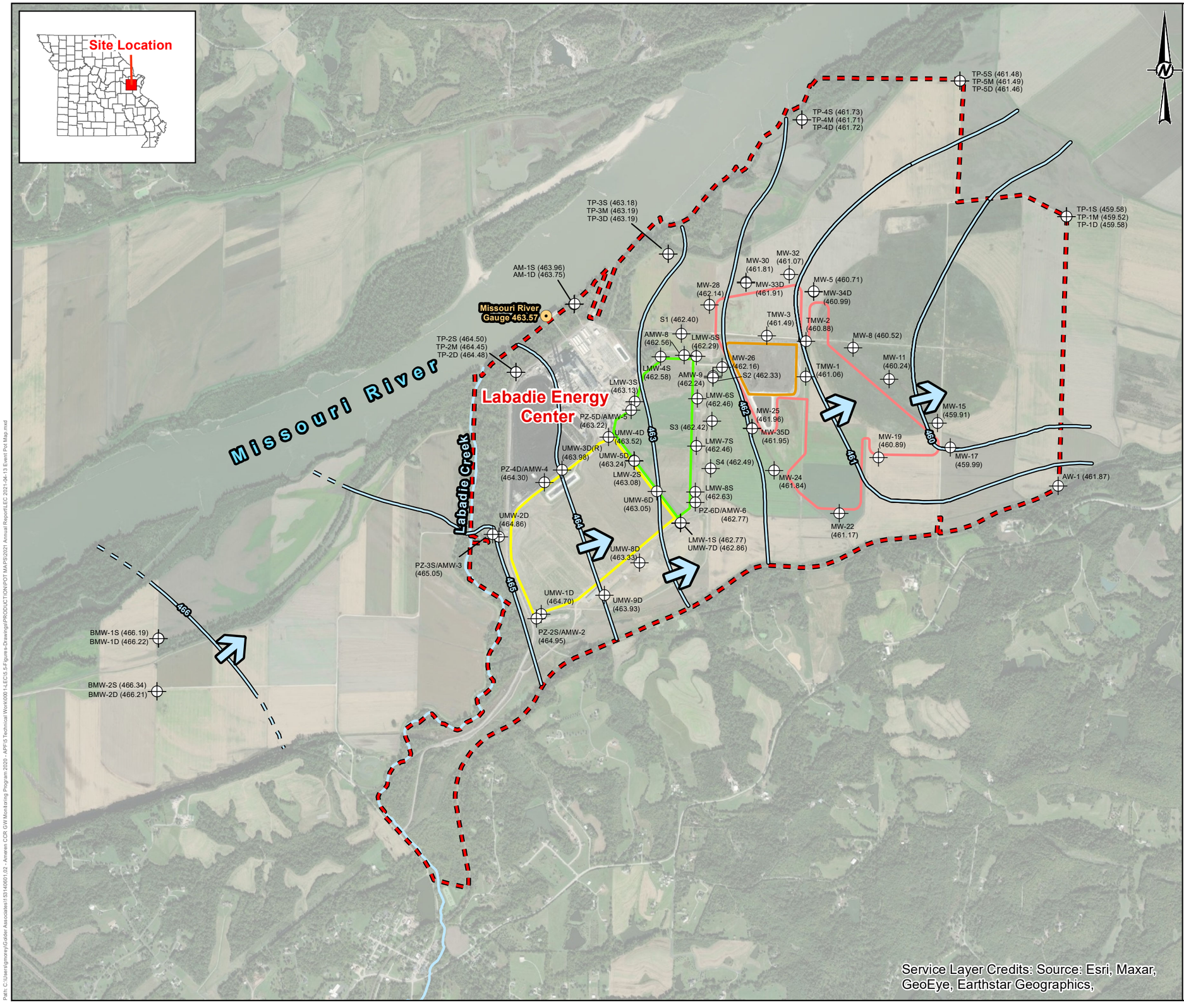

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3. GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4. MISSOURI RIVER LEVEL OBTAINED FROM USGS LABADIE GAUGE 06935550.
5. THE UWL BOUNDARIES AND DESIGNATIONS ARE BASED ON AMEREN LABADIE CONSTRUCTION PERMIT APPLICATION DRAWINGS.

REFERENCES

1. ZAHNER AND ASSOCIATES, INC. 2016. LOT CONSOLIDATION PLAT OF "LABADIE ENERGY CENTER" - PREPARED FOR AMEREN MISSOURI. REVISED JUNE 15, 2016.
2. COORDINATE SYSTEM: NAD 1983 STATEPLANE MISSOURI EAST FIPS 2,401 FEET.
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0 1,000 2,000 3,000 4,000 5,000 6,000

Feet

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
APRIL 15, 2021 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-05-14
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No. 153140603 | PHASE 0001 | FIGURE **D2**

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

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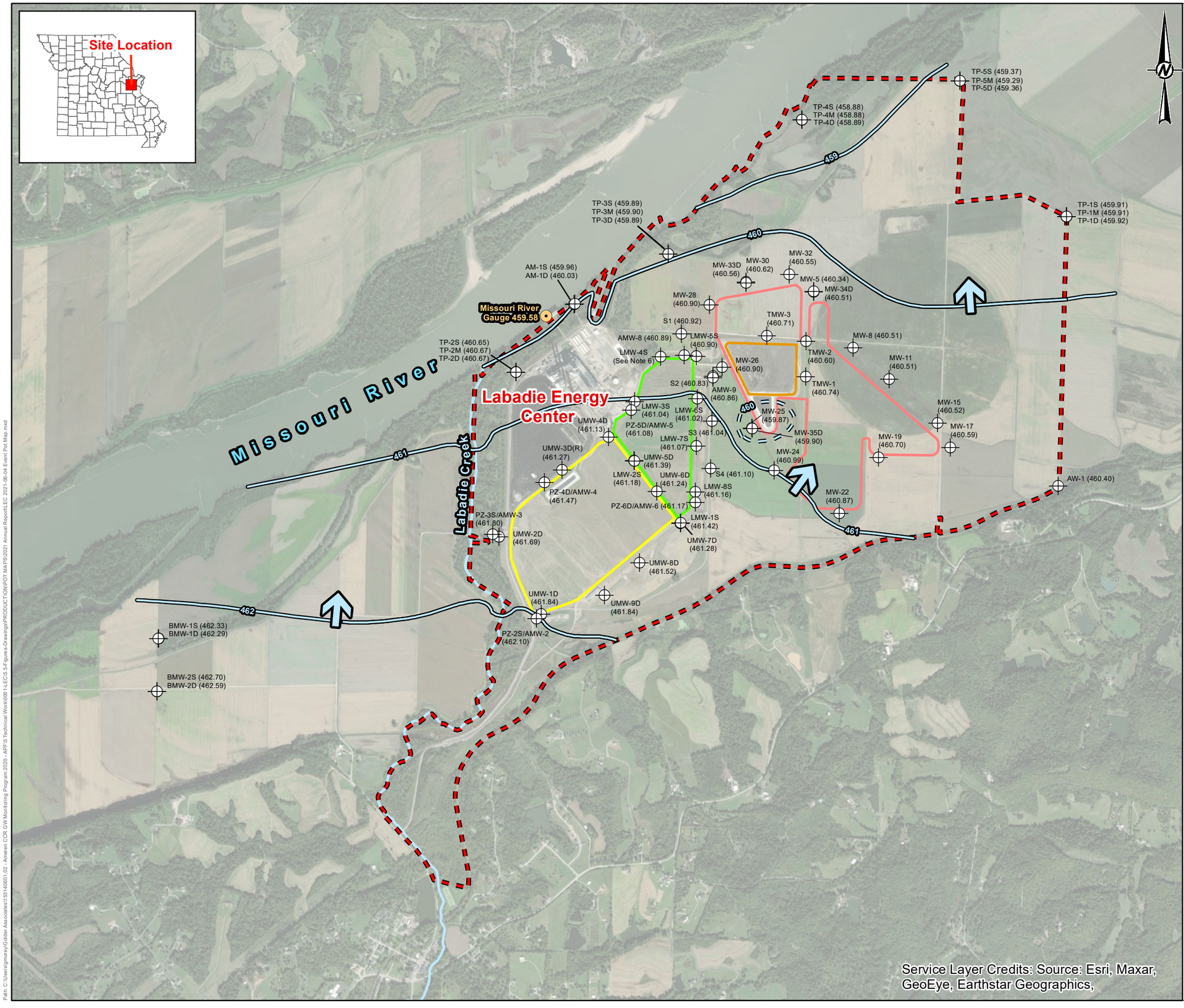

LEGEND

- Labadie Energy Center Property Boundary

Utility Waste Landfill (UWL)

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- LCL1 - Utility Waste Landfill Cell 1

Surface Impoundments

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- 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)
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5. THE UWL BOUNDARIES AND DESIGNATIONS ARE BASED ON AMEREN LABADIE CONSTRUCTION PERMIT APPLICATION DRAWINGS.
6. LMW-4S WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERROR.

REFERENCES

1. ZAHNER AND ASSOCIATES, INC. 2016. LOT CONSOLIDATION PLAT OF "LABADIE ENERGY CENTER" - PREPARED FOR AMEREN MISSOURI. REVISED JUNE 15, 2016.
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0 1,000 2,000 3,000 4,000 5,000 6,000

Feet

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
JUNE 4, 2021 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-09-03
PREPARED	ETF/BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No. 153140603
PHASE 0001
FIGURE **D3**

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

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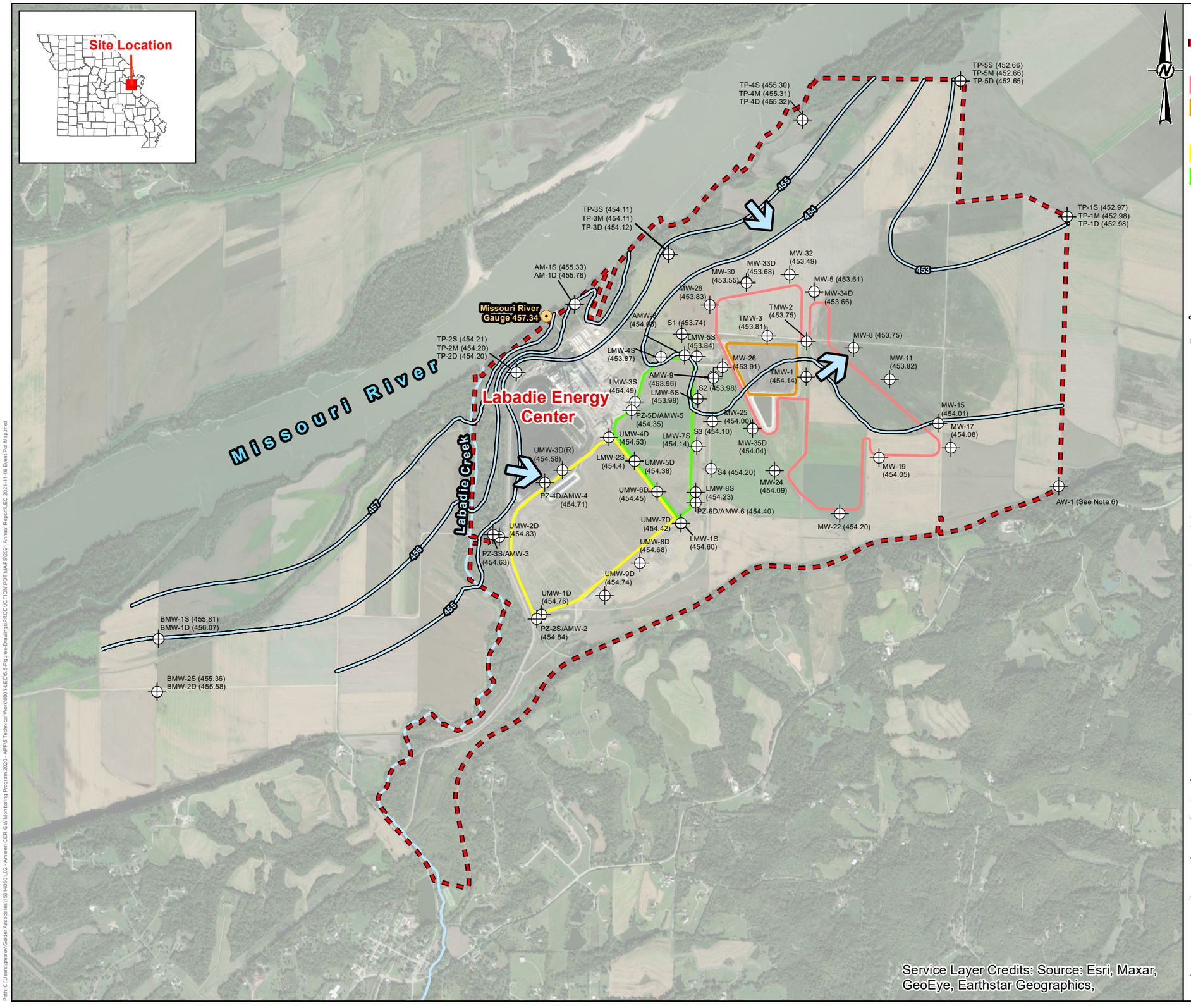

LEGEND

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NOTES

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3. GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4. MISSOURI RIVER LEVEL OBTAINED FROM USGS LABADIE GAUGE 06935550.
5. THE UWL BOUNDARIES AND DESIGNATIONS ARE BASED ON AMEREN LABADIE CONSTRUCTION PERMIT APPLICATION DRAWINGS.
6. AW-1 WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING.

REFERENCES

1. ZAHNER AND ASSOCIATES, INC. 2016. LOT CONSOLIDATION PLAT OF "LABADIE ENERGY CENTER" - PREPARED FOR AMEREN MISSOURI. REVISED JUNE 15, 2016.
2. COORDINATE SYSTEM: NAD 1983 STATEPLANE MISSOURI EAST FIPS 2,401 FEET.
3. USGS (UNITED STATES GEOLOGICAL SURVEY), NATIONAL WATER INFORMATION SYSTEM, USGS GAUGE 06935550 MISSOURI RIVER NEAR LABADIE, MO.

0 1,000 2,000 3,000 4,000 5,000 6,000

Feet

CLIENT
AMEREN MISSOURI
LABADIE ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
NOVEMBER 1, 2021 POTENTIOMETRIC SURFACE MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-01
PREPARED	ETF
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No. 153140603
PHASE 0001
FIGURE **D4**

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

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