



REPORT

**2022 Annual Groundwater Monitoring and Corrective
Action Report**

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

Submitted to:

Ameren Missouri

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EXECUTIVE SUMMARY

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 SCPD Coal Combustion Residuals (CCR) Surface Impoundment at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. The SCPD cell is a new CCR landfill cell. Therefore, this is the first Annual Report for the SCPD and describes CCR Rule groundwater monitoring activities from January 1, 2022 through December 31, 2022.

A groundwater monitoring well network, presented in **Figure 1** and listed in **Table 3**, was designed and installed for the SCPD to meet the requirements of the CCR Rule. The well network consists of two background monitoring wells (BMW-1S and BMW-3S) installed in December 2015 and November 2016 and four downgradient monitoring wells (UG-2, TMW-4, TMW-5, and TMW-6) installed in December 2007 and March 2022. Following the installation of the new downgradient monitoring wells, eight baseline sampling events were completed by the end of July 2022 and tested for all Appendix III and Appendix IV parameters. A ninth baseline sampling event was completed in October 2022 for all of the wells in the SCPD groundwater monitoring well network for Appendix III parameters. A summary of the 2022 groundwater sampling events is provided below in **Table 1**.

Table 1 – Summary of 2022 SCPD Sampling Events

Type of Event and Sampling Dates	Laboratory Analytical Data Receipt Date	Parameters Collected	Verified SSI
Detection Monitoring Baseline Sampling Event 1, March 29-April 4, 2022	May 25, 2022	Appendix III, Appendix IV, and Major Cations and Anions	Not Applicable during Baseline Sampling
Detection Monitoring Baseline Sampling Event 2, April 19, 2022	June 1, 2022		
Detection Monitoring Baseline Sampling Event 3, May 2, 2022	June 22, 2022		
Detection Monitoring Baseline Sampling Event 4, May 16, 2022	June 30, 2022		
Detection Monitoring Baseline Sampling Event 5, June 6, 2022	July 15, 2022		
Detection Monitoring Baseline Sampling Event 6, June 20, 2022	July 28, 2022		
Detection Monitoring Baseline Sampling Event 7, July 13, 2022	August 9, 2022		
Detection Monitoring Baseline Sampling Event 8, July 25, 2022	August 25, 2022		
Detection Monitoring Baseline Sampling Event 9, October 18-21, 2022	November 22, 2022	Appendix III, Major Cations and Anions	Not Applicable, CCR Unit Not Receiving Waste

Notes:

- 1.) CCR – Coal Combustion Residuals
- 2.) SSI – Statistically Significant Increase.

The SCPD began receiving CCR waste on December 14, 2022. The first Detection Monitoring sampling event and associated statistical evaluation for the SCPD will occur in Q2 2023. As a part of Detection Monitoring, statistical evaluations will be completed after each sampling event to determine if there are any values at a Statistically Significant Increase (SSI) over background as documented in the site's Statistical Analysis Plan (SAP). The SCPD will continue Detection Monitoring on a semi-annual basis in accordance with the CCR Rule. As of December 31, 2022 the SCPD groundwater monitoring program status is in Detection Monitoring.

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1.0 INSTALLATION OR DECOMMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCPD. The groundwater monitoring system consists of six monitoring wells screened in the uppermost aquifer (alluvial aquifer). One existing monitoring well (UG-2) was installed by GREDELL Engineering Resources, Inc. in December 2007 as a part of the state UWL monitoring program. Two existing background monitoring wells (BMW-1S and BMW-3S) were installed in December 2015 and November 2016 and three additional monitoring wells (TMW-4, TMW-5 and TMW-6) were installed in March 2022 by Cascade Drilling LP using rotosonic drilling techniques under the direct supervision of a Golder Geologist. Monitoring wells were installed in accordance with Missouri Department of Natural Resources (MDNR) well construction rules (10 CSR 23-4.060 Construction Standards for Monitoring Wells). A summary of groundwater monitoring well construction details is provided in **Table 2** and **Appendix A**.

1.1 Background Monitoring Well Locations

Background monitoring wells for the SCPD consist of BMW-1S and BMW-3S. The Rule (§257.91(a)(1)) requires that background groundwater monitoring wells *“Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit.”* The Rule allows background monitoring wells that are not hydraulically upgradient where hydrogeological conditions preclude it, and/or where sampling at other monitoring wells will provide an indication of background groundwater quality that is as representative as, or more representative than, that provided by upgradient monitoring well locations. The groundwater flow direction observed in the alluvial aquifer is generally from either the Mississippi River towards the Missouri River or from the Missouri River towards the Mississippi River with a slight eastward component in the downgradient river direction. Alluvial aquifer groundwater flow is locally influenced by water levels across the SEC and the Mississippi and Missouri River levels.

As shown in **Figure 1**, the background monitoring wells are BMW-1S and BMW-3S. These wells provide background groundwater quality for SCPD monitoring. These monitoring wells are also used as background wells for the SCPB, SCPC, and SCL4A CCR units at the SEC.

1.2 Downgradient Monitoring Well Locations

Downgradient monitoring wells are located around the SCPD to monitor downgradient water quality. **Figure 1** shows that the downgradient well network consists of four groundwater monitoring wells (UG-2, TMW-4, TMW-5, TMW-6) around the SCPD at locations that accurately represent the quality of groundwater passing the waste boundary of the CCR Unit.

2.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

2.1 Baseline Sampling Events (Background Events)

As required by the CCR Rule, eight baseline groundwater sampling events were completed following the installation of TMW-4, TMW-5, and TMW-6 in March 2022. Groundwater sampling was completed in accordance with the SCPD Groundwater Monitoring Plan (GMP). As required by the CCR Rule, baseline samples were tested for all Appendix III and Appendix IV parameters. Monitoring wells UG-2, BMW-1S, and BMW-3S were not sampled during each of the initial eight 2022 baseline sampling events because these monitoring wells were previously sampled and tested for the SCPC CCR unit. Data from these wells prior to 2022 is provided in previous Annual Reports for the SCPC. A ninth baseline sampling event was completed in October 2022. Sampling and testing were completed for Appendix III parameters for all monitoring wells in the SCPD network.

Table 3 below provides a summary of the groundwater samples collected in 2022 including the number of samples, the date of sample collection, and the monitoring program. Groundwater sampling and field parameter results from the initial baseline sampling are provided in **Appendix B** and **Tables 4-12**.

Table 3 – Summary of Groundwater Sampling Dates

Sampling Event	Groundwater Monitoring Wells						Monitoring Program
	BMW-1S	BMW-3S	UG-2	TMW-4	TMW-5	TMW-6	
	Date of Sample Collection						
Baseline Sampling Event #1	3/29/2022	3/29/2022	4/4/2022	4/4/2022	4/4/2022	4/4/2022	Baseline
Baseline Sampling Event #2	Baseline samples for BMW-1S, BMW-3S, and UG-2 collected for the SCPC in 2016/2017 and provided in the SCPC 2017 CCR Annual Groundwater Monitoring and Corrective Action Report.			4/19/2022	4/19/2022	4/19/2022	Baseline
Baseline Sampling Event #3				5/2/2022	5/2/2022	5/2/2022	Baseline
Baseline Sampling Event #4				5/16/2022	5/16/2022	5/16/2022	Baseline
Baseline Sampling Event #5				6/6/2022	6/6/2022	6/6/2022	Baseline
Baseline Sampling Event #6				6/20/2022	6/20/2022	6/20/2022	Baseline
Baseline Sampling Event #7				7/13/2022	7/13/2022	7/13/2022	Baseline
Baseline Sampling Event #8				7/25/2022	7/25/2022	7/25/2022	Baseline
Baseline Sampling Event #9	10/18/2022	10/18/2022	10/21/2022	10/20/2022	10/20/2022	10/20/2022	Baseline
Total Number of Samples Collected	2	2	2	9	9	9	NA

Notes:

- 1.) Baseline Event #1 to #8 samples were tested for all Appendix III and Appendix IV parameters.
- 2.) Baseline Event #9 TMW-4, TMW-5, and TMW-6 samples were tested for Appendix III parameters.
- 3.) NA - Not applicable.

2.2 Detection Monitoring

The first Detection Monitoring samples with associated statistical analysis for the SCPD will be collected concurrently with the other Sioux Energy Center (SEC) CCR units in Q2 2023. As required by the CCR Rule, testing will be completed for all Appendix III analytes. Statistical analyses will then be completed to evaluate for Statistically Significant Increases (SSI) over background. Results of the 2023 Detection Monitoring events will be included in the 2023 Annual Report.

2.3 Groundwater Elevation, Flow Rate and Direction

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

Groundwater elevations were used to generate potentiometric surface maps included in **Appendix D**. As shown on the potentiometric surface maps, groundwater flow direction within the uppermost aquifer is dynamic and influenced by seasonal changes in the water level in the adjacent Mississippi and Missouri Rivers, which affect water levels, gradients, and flow directions in these water bodies. Groundwater in the alluvial aquifer will generally

flow from the higher of the two rivers toward the lower elevation river. Water flows into and out of the alluvial aquifer as a result of fluctuating river water levels that produce “bank recharge” and “bank discharge” conditions. At this facility, groundwater can flow north and south toward the Mississippi and Missouri Rivers, depending on river levels.

Groundwater flow direction and hydraulic gradient at the SEC were estimated for the alluvial aquifer wells using commercially available software to evaluate data since 2016. Results indicate that groundwater flow direction at the SEC is variable due to fluctuating river levels but has often flowed from north to south. The overall net groundwater flow direction in the alluvial aquifer at the SEC was slightly to the southeast due to reversals in flow as a result of variable river levels in the Missouri and Mississippi Rivers. Horizontal gradients calculated by the program range from 0.00006 to 0.0009 feet/foot with an estimated net annual groundwater movement of approximately four (4) feet per year in the prevailing downgradient direction.

3.0 STATUS OF THE GROUNDWATER MONITORING PROGRAM

As required by the CCR Rule, the following was completed for the SCPD: (1) a Groundwater Monitoring Well System was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, and (3) a Groundwater Monitoring Plan (GMP) was prepared recording the design, installation, development, sampling procedures, as well as statistical methods and placed in the owner’s operating record. The first Detection Monitoring sampling event for the SCPD will be completed in 2023. A summary including the number of groundwater samples that were collected for analysis, the dates the samples were collected, and whether the sample was required by baseline, detection or assessment monitoring is provided in **Table 2**. Semi-annual Detection Monitoring will continue as required by the CCR Rule. **Section 4.0** provides discussion of activities planned for 2023.

3.1 Sampling Issues

No notable sampling issues were encountered during SCPD sampling in 2022.

4.0 ACTIVITIES PLANNED FOR 2023

Detection Monitoring is currently scheduled to be completed semi-annually in the second and fourth quarters of 2023, but timing may be changed due to site conditions (e.g., flooding, access, etc.). More information about the completion of the construction of the final SCPD surface impoundment will be included in the 2023 Annual Report.

Tables

Table 2
Monitoring Well Construction Details
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

Well ID	Installation Date	Location		Top of Casing Elevation	Ground Surface Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Base of Well Elevation	Total Depth
		Northing ³	Easting ³	(FT MSL) ¹	(FT MSL) ¹	(FT MSL) ¹	(FT MSL) ¹	(FT MSL) ¹	(FT BGS) ²
BMW-1S	12/8/2015	1121709.2	876755.6	427.77	426.0	409.4	399.6	399.2	26.8
BMW-3S	11/8/2016	1121792.9	875809.5	426.69	424.1	406.9	397.1	396.7	27.4
TMW-4	3/4/2022	1116959.3	878952.1	432.35	430.0	411.3	401.5	401.1	28.9
TMW-5	3/4/2022	1116856.0	879563.9	432.30	429.9	411.2	401.4	400.9	29.0
TMW-6	3/4/2022	1116909.9	880086.0	433.25	430.8	410.9	401.1	400.6	30.2
UG-2*	12/16/2007	1118859.7	879319.5	429.27	426.5	409.5	399.3	399.3	30.0

Notes:

- 1.) FT MSL - Feet Above Mean Sea Level.
- 2.) FT BGS - Feet Below Ground Surface.
- 3.) Horizontal Datum: State Plane Coordinates NAD83 (2000) Missouri East Zone Feet.
- 4.) Vertical Datum: NAVD88 Feet.
- 5.) Background monitoring wells (BMW-1S & BMW-3S) elevations and coordinates were surveyed on January 14, 2016 and December 8, 2016 by Zahner and Associates, Inc.
- 6.) Monitoring wells (TMW-4, TMW-5, and TMW-6) elevations and coordinates were surveyed on March 28, 2022 by Zahner and Associates, Inc.
- 7.) *Groundwater monitoring well installed by GREDELL Engineering Resources and surveyed by KdG.

Table 4
Baseline Sampling Event 1 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BMW-1S	BMW-3S	TMW-4	TMW-5	TMW-6	UG-2
FIELD PARAMETERS							
DATE	NA	3/29/2022	3/29/2022	4/4/2022	4/4/2022	4/4/2022	4/4/2022
DISSOLVED OXYGEN	mg/L	0.10	0.33	0.22	0.24	0.21	0.69
pH	SU	6.80	6.94	7.04	6.94	6.72	7.02
REDOX POTENTIAL	mV	4.1	95.2	67.5	40.1	117.4	82.3
SPECIFIC CONDUCTIVITY	mS/cm	0.954	0.864	0.767	0.784	0.904	0.598
TURBIDITY	NTU	0.46	0.71	4.51	0.49	0.37	0.38
APPENDIX III PARAMETERS							
BORON, TOTAL	µg/L	68.0 J	70.7 J	99.3 J	111	112	113
CALCIUM, TOTAL	µg/L	173,000	147,000	141,000	146,000	176,000	97,300
CHLORIDE, TOTAL	mg/L	8.5	11.8	2.6	1.8	7.1	33.7
SULFATE, TOTAL	mg/L	44.9	47.8	38.8	37.4	44.0	66.4
TOTAL DISSOLVED SOLIDS	mg/L	591	508	520	533	285	493
APPENDIX IV PARAMETERS							
ANTIMONY, TOTAL	µg/L	ND	ND	0.26 J	0.20 J	0.22 J	-
ARSENIC, TOTAL	µg/L	0.98 J	0.59 J	0.50 J	0.47 J	0.57 J	-
BARIUM, TOTAL	µg/L	178	140	219	239	254	-
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	1.0 J	ND	-
CADMIUM, TOTAL	µg/L	0.14 J	0.076 J	0.060 J	0.057 J	0.10 J	-
CHROMIUM, TOTAL	µg/L	0.38 J	0.45 J	0.52 J	0.36 J	ND	-
COBALT, TOTAL	µg/L	1.5 J	ND	3.4 J	5.0 J	5.6	-
FLUORIDE, TOTAL	mg/L	0.30	0.36	ND	0.28	ND	0.18 J
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	-
LITHIUM, TOTAL	µg/L	5.8 J	9.8 J	31.7	37.1	41.3	-
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	-
MOLYBDENUM, TOTAL	µg/L	2.6 J	2.4 J	ND	ND	ND	-
RADIUM [226 + 228]	pCi/L	ND	ND	1.366	1.752	ND	-
SELENIUM, TOTAL	µg/L	ND	0.35 J	2.6	1.8	1.3	-
THALLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	-
ADDITIONAL PARAMETERS							
ALKALINITY	mg/L	505	428	437	470	537	326
IRON, TOTAL	µg/L	ND	ND	34.2 J	170	108	ND
MAGNESIUM, TOTAL	µg/L	30,000	24,100	30,200	27,700	31,700	21,400
MANGANESE, TOTAL	µg/L	675	215	737	535	909	14.8
POTASSIUM, TOTAL	µg/L	470 J	569	6,110	6,110	8,450	5,150
SODIUM, TOTAL	mg/L	4.9	6.3	4.7	4.7	5.8	43.4
IRON, FERRIC, TOTAL	mg/L	0.013 J	0.010 J	-	-	-	-
IRON, FERROUS, TOTAL	mg/L	ND	ND	-	-	-	-
SULFIDE, TOTAL	mg/L	ND	ND	-	-	-	-

NOTES

- Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
- J - Result is an estimated value.
- 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.
- Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
- NA - Not Applicable.
- "-" - Parameter not tested.

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

Table 5
Baseline Sampling Event 2 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	4/19/2022	4/19/2022	4/19/2022
DISSOLVED OXYGEN	mg/L	0.51	0.27	0.54
pH	SU	7.02	6.98	6.91
REDOX POTENTIAL	mV	153.8	100.0	78.1
SPECIFIC CONDUCTIVITY	mS/cm	0.855	0.828	0.948
TURBIDITY	NTU	1.65	4.20	0.96
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	118 J	99.8 J	113
CALCIUM, TOTAL	µg/L	134,000	137,000	158,000
CHLORIDE, TOTAL	mg/L	2.7 J	2.0 J	6.5
SULFATE, TOTAL	mg/L	39.2	41.6	44.8
TOTAL DISSOLVED SOLIDS	mg/L	512	521	595
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.23 J	0.17 J	0.19 J
ARSENIC, TOTAL	µg/L	0.58 J	0.69 J	0.61 J
BARIUM, TOTAL	µg/L	208	212	238
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	0.084 J
CHROMIUM, TOTAL	µg/L	ND	ND	ND
COBALT, TOTAL	µg/L	1.7 J	2.2 J	2.8 J
FLUORIDE, TOTAL	mg/L	0.42	0.40	0.37
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	32.6	35.7	38.7
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	4.5 J	2.0 J	4.4 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND
SELENIUM, TOTAL	µg/L	2.6	0.67 J	2.6
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	419	427	473
IRON, TOTAL	µg/L	25.6 J	156	41.4 J
MAGNESIUM, TOTAL	µg/L	31,400	26,300	31,400
MANGANESE, TOTAL	µg/L	678	495	751
POTASSIUM, TOTAL	µg/L	5,570	5,480	10,200
SODIUM, TOTAL	mg/L	4.5	4.4	5.5

- NOTES**
- Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
 - J - Result is an estimated value.
 - 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.
 - Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
 - NA - Not Applicable.

Table 6
Baseline Sampling Event 3 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	5/2/2022	5/2/2022	5/2/2022
DISSOLVED OXYGEN	mg/L	0.81	0.47	1.79
pH	SU	6.80	6.86	6.93
REDOX POTENTIAL	mV	-61.5	139.5	148.3
SPECIFIC CONDUCTIVITY	mS/cm	0.861	0.777	0.907
TURBIDITY	NTU	1.79	4.86	0.83
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	96.8 J	86.0 J	119
CALCIUM, TOTAL	µg/L	136,000	116,000	161,000
CHLORIDE, TOTAL	mg/L	2.7	2.0	5.2
SULFATE, TOTAL	mg/L	38.3	41.1	41.4
TOTAL DISSOLVED SOLIDS	mg/L	547	481	615
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.25 J	0.17 J	0.22 J
ARSENIC, TOTAL	µg/L	0.51 J	0.66 J	0.60 J
BARIUM, TOTAL	µg/L	210	185	264
BERYLLIUM, TOTAL	µg/L	ND	0.51 J	ND
CADMIUM, TOTAL	µg/L	ND	ND	ND
CHROMIUM, TOTAL	µg/L	ND	0.38 J	0.54 J
COBALT, TOTAL	µg/L	ND	1.6 J	ND
FLUORIDE, TOTAL	mg/L	ND	ND	ND
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	34.5	30.8	41.0
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	3.7 J	3.2 J	5.2 J
RADIUM [226 + 228]	pCi/L	1.377 J	1.074 J	1.532
SELENIUM, TOTAL	µg/L	3.7	0.54 J	3.2
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	402	385	466
IRON, TOTAL	µg/L	19.4 J	132	50.7
MAGNESIUM, TOTAL	µg/L	32,800	22,600	32,100
MANGANESE, TOTAL	µg/L	513	435	729
POTASSIUM, TOTAL	µg/L	6,090	5,070	17,900
SODIUM, TOTAL	mg/L	4.8	3.8	6.0

NOTES

1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
4. Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Activity (MDA) is higher in which case it is displayed as ND.
5. NA - Not Applicable.

Table 7
Baseline Sampling Event 4 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	5/16/2022	5/16/2022	5/16/2022
DISSOLVED OXYGEN	mg/L	0.36	0.22	0.62
pH	SU	7.12	7.15	7.00
REDOX POTENTIAL	mV	126.4	32.4	140.7
SPECIFIC CONDUCTIVITY	mS/cm	0.734	0.644	0.823
TURBIDITY	NTU	2.38	1.74	4.13
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	89.9 J	92.4 J	95.8 J
CALCIUM, TOTAL	µg/L	134,000	122,000	159,000
CHLORIDE, TOTAL	mg/L	2.9	2.2	9.6
SULFATE, TOTAL	mg/L	41.7	42.0	45.0
TOTAL DISSOLVED SOLIDS	mg/L	484	453	598
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.21 J	0.15 J	0.18 J
ARSENIC, TOTAL	µg/L	0.56 J	0.68 J	0.56 J
BARIUM, TOTAL	µg/L	209	192	225
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.061 J	ND	0.071 J
CHROMIUM, TOTAL	µg/L	ND	0.35 J	0.43 J
COBALT, TOTAL	µg/L	1.6 J	1.7 J	3.0 J
FLUORIDE, TOTAL	mg/L	0.40	0.40	0.34
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	32.1	33.5	38.0
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	4.8 J	2.4 J	2.3 J
RADIUM [226 + 228]	pCi/L	ND	27.4	ND
SELENIUM, TOTAL	µg/L	2.1	0.26 J	0.43 J
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	423	373	489
IRON, TOTAL	µg/L	62.6 J	329	63.8
MAGNESIUM, TOTAL	µg/L	32,100	24,200	32,700
MANGANESE, TOTAL	µg/L	666	450	775
POTASSIUM, TOTAL	µg/L	5,750	5,330	5,920
SODIUM, TOTAL	mg/L	4.2	4.2	4.7

- NOTES**
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
 2. J - Result is an estimated value.
 3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
 4. Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
 5. NA - Not Applicable.

Table 8
Baseline Sampling Event 5 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	6/6/2022	6/6/2022	6/6/2022
DISSOLVED OXYGEN	mg/L	0.17	0.20	0.29
pH	SU	6.77	6.96	6.87
REDOX POTENTIAL	mV	123.5	105.1	108.5
SPECIFIC CONDUCTIVITY	mS/cm	0.767	0.693	0.957
TURBIDITY	NTU	1.60	1.18	2.32
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	80.5 J	90.1 J	95.0 J
CALCIUM, TOTAL	µg/L	125,000	118,000	163,000
CHLORIDE, TOTAL	mg/L	2.9	2.3 J	7.6
SULFATE, TOTAL	mg/L	42.0	41.3	45.4
TOTAL DISSOLVED SOLIDS	mg/L	520	447	640
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.19 J	0.15 J	0.15 J
ARSENIC, TOTAL	µg/L	0.64 J	0.82 J	0.59 J
BARIUM, TOTAL	µg/L	189	186	235
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.063 J	ND	0.083 J
CHROMIUM, TOTAL	µg/L	0.39 J	0.43 J	ND
COBALT, TOTAL	µg/L	ND	1.7 J	1.7 J
FLUORIDE, TOTAL	mg/L	0.48	0.34	0.24
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	30.0	32.6	39.1
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	4.1 J	2.1 J	2.8 J
RADIUM [226 + 228]	pCi/L	2.29	1.328 J	ND
SELENIUM, TOTAL	µg/L	1.7	0.23 J	0.55 J
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	398	361	513
IRON, TOTAL	µg/L	22.4 J	476	59.5
MAGNESIUM, TOTAL	µg/L	29,100	22,900	32,700
MANGANESE, TOTAL	µg/L	511	433	740
POTASSIUM, TOTAL	µg/L	5,640	5,290	6,260
SODIUM, TOTAL	mg/L	4.4	4.3	5.0

NOTES

1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
4. Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
5. NA - Not Applicable.

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

Table 9
Baseline Sampling Event 6 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	6/20/2022	6/20/2022	6/20/2022
DISSOLVED OXYGEN	mg/L	0.43	0.40	0.56
pH	SU	6.85	6.90	6.76
REDOX POTENTIAL	mV	69.3	28.0	68.7
SPECIFIC CONDUCTIVITY	mS/cm	0.651	0.553	0.756
TURBIDITY	NTU	1.21	2.84	0.44
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	96.3 J	94.4 J	97.8 J
CALCIUM, TOTAL	µg/L	138,000	119,000	167,000
CHLORIDE, TOTAL	mg/L	2.7	2.1	6.0
SULFATE, TOTAL	mg/L	42.9	40.1	46.5
TOTAL DISSOLVED SOLIDS	mg/L	505	424	622
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.17 J	0.14 J	0.14 J
ARSENIC, TOTAL	µg/L	0.44 J	0.73 J	0.58 J
BARIUM, TOTAL	µg/L	214	185	239
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.062 J	ND	0.082 J
CHROMIUM, TOTAL	µg/L	0.50 J	0.39 J	ND
COBALT, TOTAL	µg/L	ND	ND	1.8 J
FLUORIDE, TOTAL	mg/L	0.46	0.49	0.36
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	38.1	35.2	41.8
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	ND	ND	ND
RADIUM [226 + 228]	pCi/L	2.242	ND	ND
SELENIUM, TOTAL	µg/L	1.9	ND	0.64 J
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	411	356	508
IRON, TOTAL	µg/L	10.9 J	278	81.0
MAGNESIUM, TOTAL	µg/L	33,100	23,100	33,500
MANGANESE, TOTAL	µg/L	358	447	798
POTASSIUM, TOTAL	µg/L	6,280	5,280	6,120
SODIUM, TOTAL	mg/L	4.7	4.2	4.9

- NOTES**
- Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
 - J - Result is an estimated value.
 - 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.
 - Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
 - NA - Not Applicable.

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

Table 10
Baseline Sampling Event 7 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	7/13/2022	7/13/2022	7/13/2022
DISSOLVED OXYGEN	mg/L	0.26	0.29	0.39
pH	SU	6.78	6.73	6.73
REDOX POTENTIAL	mV	65.5	24.7	108.7
SPECIFIC CONDUCTIVITY	mS/cm	0.841	0.842	0.942
TURBIDITY	NTU	1.07	2.15	2.59
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	89.7 J	98.6 J	106
CALCIUM, TOTAL	µg/L	129,000	132,000	157,000 J
CHLORIDE, TOTAL	mg/L	2.9 J	1.9 J	4.8 J
SULFATE, TOTAL	mg/L	39.5	36.1	40.8
TOTAL DISSOLVED SOLIDS	mg/L	518	516 J	604
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.24 J	0.25 J	0.15 J
ARSENIC, TOTAL	µg/L	0.54 J	0.50 J	0.45 J
BARIUM, TOTAL	µg/L	201	215	241
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	ND
CHROMIUM, TOTAL	µg/L	ND	0.84 J	0.53 J
COBALT, TOTAL	µg/L	1.4 J	3.1 J	ND
FLUORIDE, TOTAL	mg/L	0.44	0.45	ND
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	34.9	34.5	39.0
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	4.3 J	2.8 J	3.2 J
RADIUM [226 + 228]	pCi/L	ND	ND	2.270
SELENIUM, TOTAL	µg/L	4.6	5.0	3.4
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	429	421	474 J
IRON, TOTAL	µg/L	12.9 J	105 J	ND
MAGNESIUM, TOTAL	µg/L	30,900	27,500	31,400
MANGANESE, TOTAL	µg/L	560	477	661
POTASSIUM, TOTAL	µg/L	5,810	5,490	8,420
SODIUM, TOTAL	mg/L	4.5	4.9	5.4

- NOTES**
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
 2. J - Result is an estimated value.
 3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
 4. Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
 5. NA - Not Applicable.

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

Table 11
Baseline Sampling Event 8 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	TMW-4	TMW-5	TMW-6
FIELD PARAMETERS				
DATE	NA	7/25/2022	7/25/2022	7/25/2022
DISSOLVED OXYGEN	mg/L	0.26	0.32	0.44
pH	SU	7.00	6.94	6.81
REDOX POTENTIAL	mV	78.7	55.4	164.4
SPECIFIC CONDUCTIVITY	mS/cm	0.855	0.869	0.913
TURBIDITY	NTU	2.30	3.74	0.90
APPENDIX III PARAMETERS				
BORON, TOTAL	µg/L	95.3 J	102	119
CALCIUM, TOTAL	µg/L	131,000	138,000	152,000 J
CHLORIDE, TOTAL	mg/L	3.1 J	1.9 J	3.2 J
SULFATE, TOTAL	mg/L	39.3	34.9	35.3
TOTAL DISSOLVED SOLIDS	mg/L	548	545	694
APPENDIX IV PARAMETERS				
ANTIMONY, TOTAL	µg/L	0.23 J	0.17 J	0.16 J
ARSENIC, TOTAL	µg/L	0.56 J	0.37 J	0.47 J
BARIUM, TOTAL	µg/L	193	207	249
BERYLLIUM, TOTAL	µg/L	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.076 J	0.084 J	0.087 J
CHROMIUM, TOTAL	µg/L	ND	0.53 J	0.67 J
COBALT, TOTAL	µg/L	ND	3.1 J	ND
FLUORIDE, TOTAL	mg/L	0.43	0.22 J	0.18 J
LEAD, TOTAL	µg/L	ND	ND	ND
LITHIUM, TOTAL	µg/L	36.6	35.3	37.4
MERCURY, TOTAL	µg/L	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	4.0 J	2.1 J	3.2 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND
SELENIUM, TOTAL	µg/L	7.0	4.5	4.8
THALLIUM, TOTAL	µg/L	ND	ND	ND
ADDITIONAL PARAMETERS				
ALKALINITY	mg/L	429	428	449
IRON, TOTAL	µg/L	ND	34.8 J	11.2 J
MAGNESIUM, TOTAL	µg/L	32,400	31,800	31,300
MANGANESE, TOTAL	µg/L	547	418	506
POTASSIUM, TOTAL	µg/L	6,100	5,760	14,400
SODIUM, TOTAL	mg/L	4.9	5.1	6.1

- NOTES**
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, pCi/L - picocuries per liter, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity units.
 2. J - Result is an estimated value.
 3. ND - Constituent was analyzed but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
 4. Radium [226 + 228] is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
 5. NA - Not Applicable.

Table 12
Baseline Sampling Event 9 Results
SCPD Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS			
		BMW-1S	BMW-3S	UG-2	TMW-4	TMW-5	TMW-6
October 2022 Sampling Event							
DATE	NA	10/18/2022	10/18/2022	10/21/2022	10/20/2022	10/20/2022	10/20/2022
pH	SU	6.84	7.01	7.00	6.92	6.81	6.85
BORON, TOTAL	µg/L	73.0 J	84.2 J	184	108	101	115
CALCIUM, TOTAL	µg/L	168,000	131,000	122,000	126,000	144,000 J	120,000
CHLORIDE, TOTAL	mg/L	9.2	11.7	59.2	3.1 J	1.8	1.3
FLUORIDE, TOTAL	mg/L	0.20 J	0.22	ND	0.30	0.22	0.21
SULFATE, TOTAL	mg/L	61.1	27.8	47.3	47.7	36.8 J	38.1
TOTAL DISSOLVED SOLIDS	mg/L	711	467	649	526 J	522	619

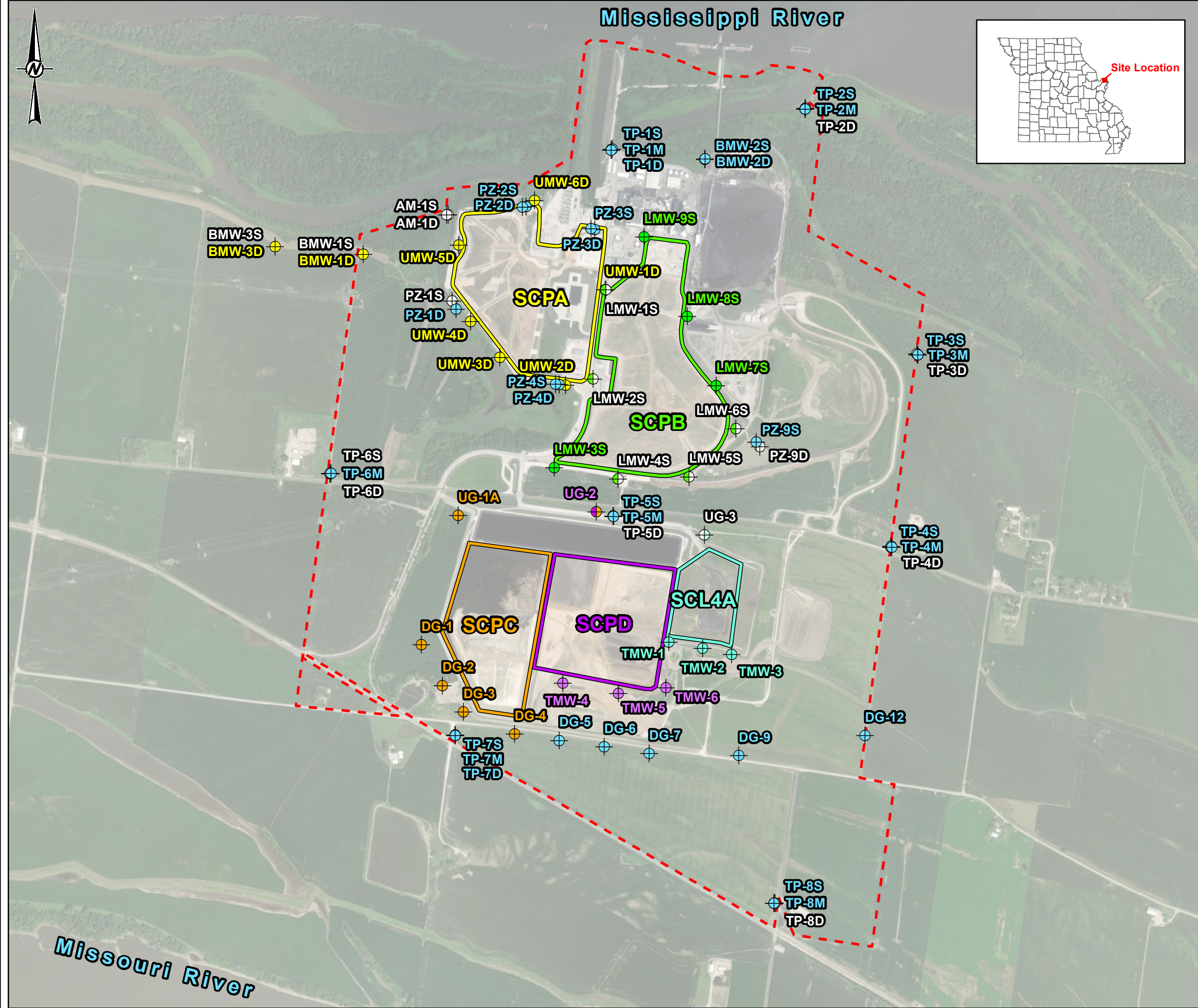
NOTES:

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

Prepared By: EMS
Checked By: JAB
Reviewed By: MNH

Figures

PATH: C:\Users\Esther\OneDrive\Documents\1531406\01 - Ameren CCR GW Monitoring Program 2020 - APE (US Technical Work\003-SEC\3.5-Figures\Drawings\PRODUCTION\MMA Evr\Figure XX-CCR Well Programs - MMA - Copy.mxd) PRINTED ON: 2022-12-12 AT: 8:34:59 AM



LEGEND

- Sioux Energy Center Property Boundary

CCR Units

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

Utility Waste Landfill (UWL)

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

Monitoring Well Networks

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

0 1,000 2,000 3,000
Feet

NOTE(S)

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

REFERENCE(S)

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.

CLIENT
 AMEREN MISSOURI
 SIOUX ENERGY CENTER

PROJECT
 GROUNDWATER MONITORING PROGRAM

TITLE
 SIOUX ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND SAMPLE LOCATION MAP

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

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

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

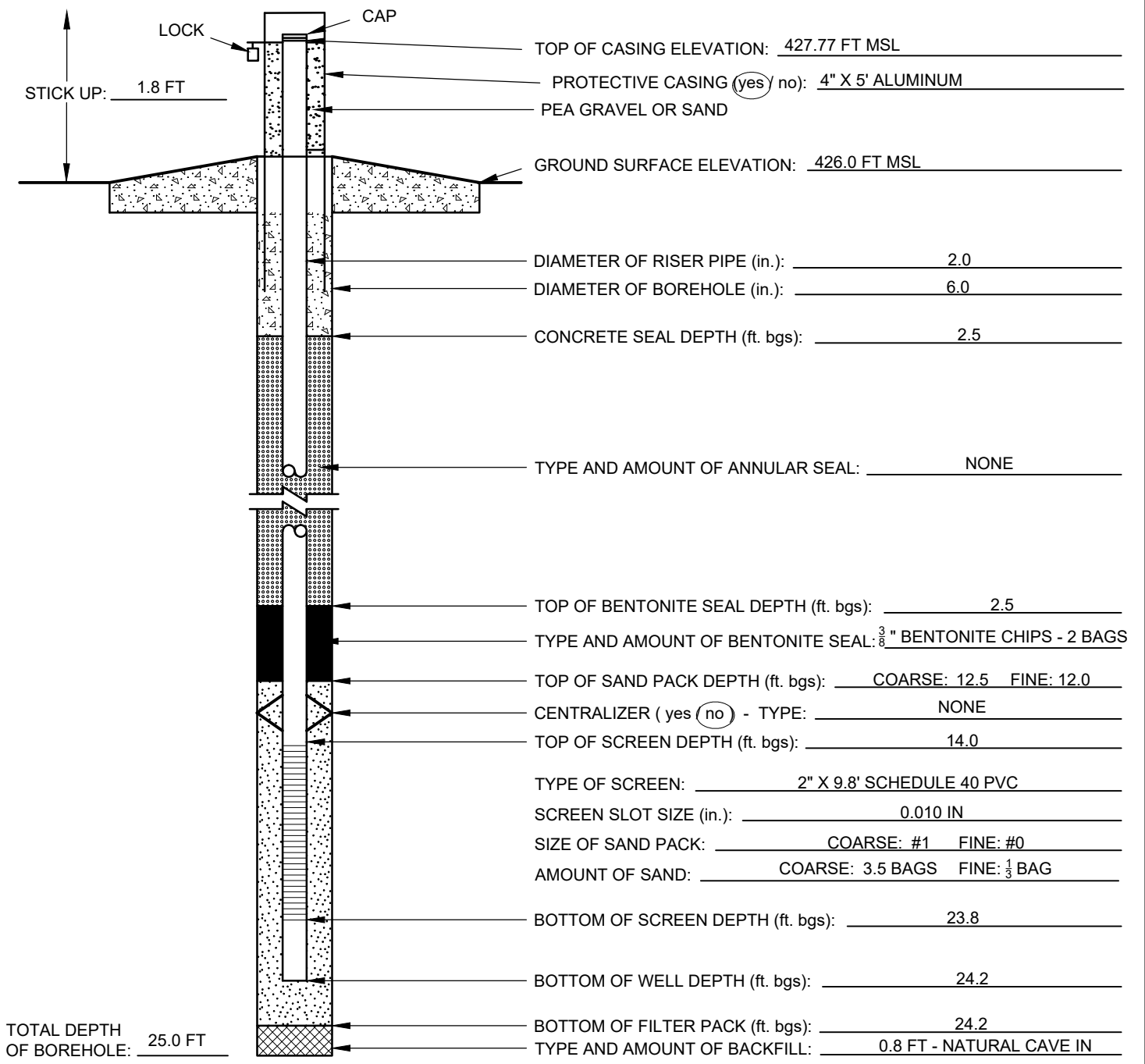
APPENDIX A

**CCR Monitoring Well Construction
Diagrams**



ABOVE GROUND MONITORING WELL CONSTRUCTION LOG BMW-1S

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER		LOCATION: BMW-1S	
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 426.0 FT MSL	
GEOLOGIST: J. INGRAM	NORTHING: 1121709.2	EASTING: 876755.6	
DRILLER: J. DRABEK	STATIC WATER LEVEL: 7.35 FT BTOC	COMPLETION DATE: 12/8/2015	
DRILLING COMPANY: CASCADE		DRILLING METHODS: SONIC	



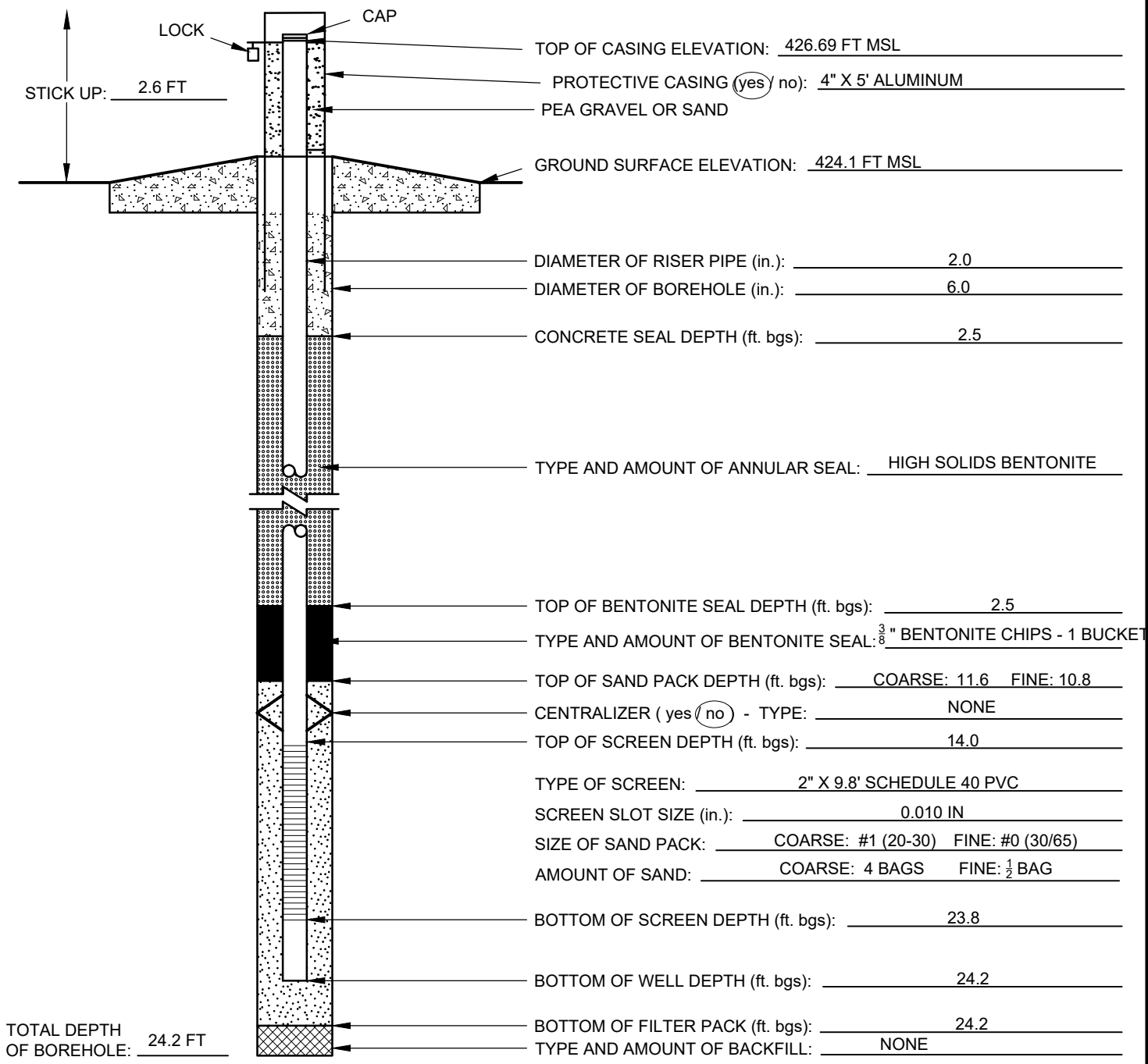
ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL.
50 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000)
MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016.
FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

CHECKED BY: J. INGRAM
DATE CHECKED: 4/20/2016
PREPARED BY: J. SUOZZI



ABOVE GROUND MONITORING WELL CONSTRUCTION LOG BMW-3S

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER		LOCATION: BMW-3S	
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 424.1 FT MSL	
GEOLOGIST: J. INGRAM/M. GORE	NORTHING: 1121792.9	EASTING: 875809.5	
DRILLER: M. RODRIGUES	STATIC WATER LEVEL: 8.65 FT BTOC	COMPLETION DATE: 11/8/2016	
DRILLING COMPANY: CASCADE		DRILLING METHODS: SONIC	



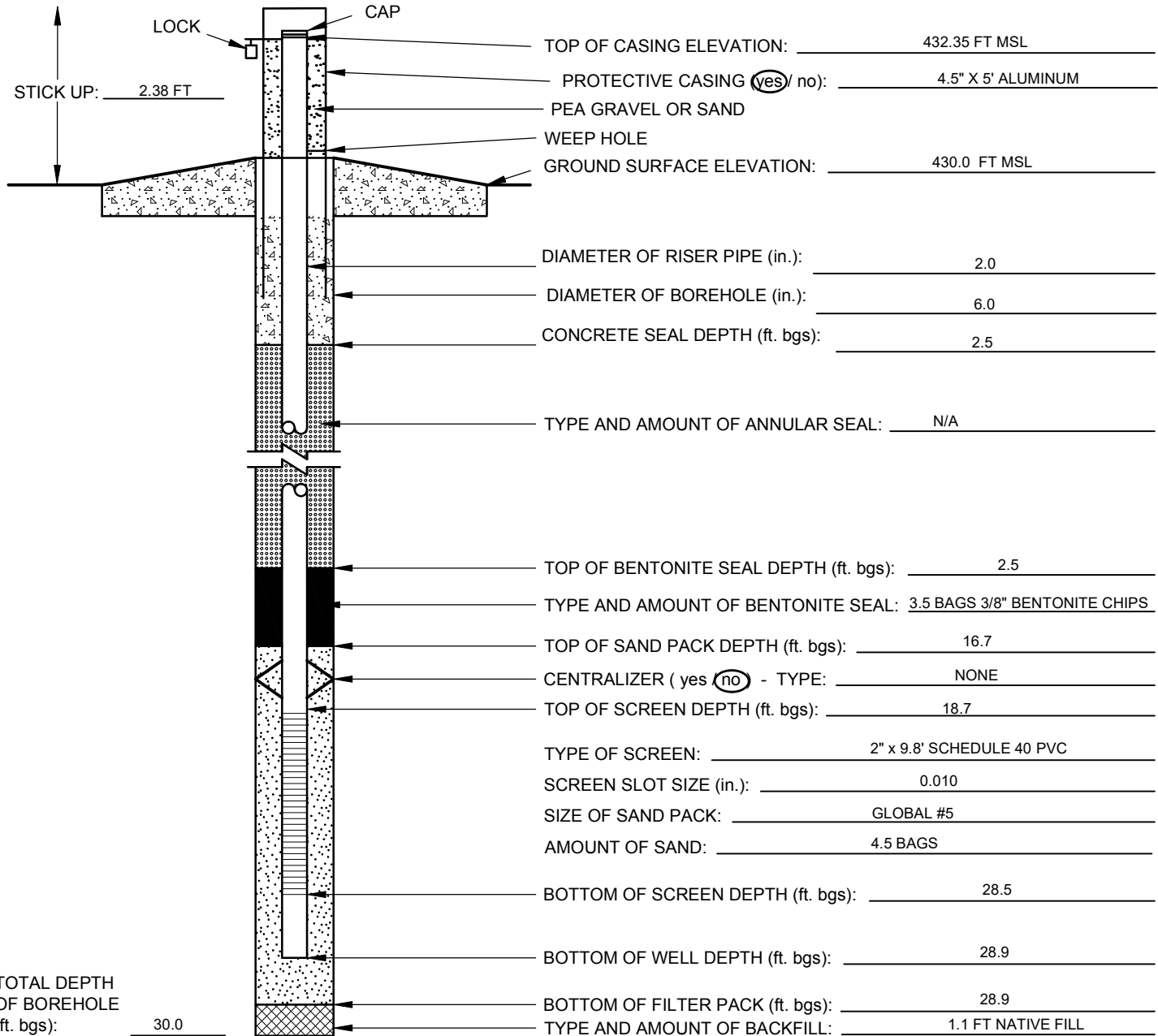
TOP OF CASING ELEVATION: 426.69 FT MSL
 PROTECTIVE CASING (yes) no: 4" X 5' ALUMINUM
 PEAK GRAVEL OR SAND
 GROUND SURFACE ELEVATION: 424.1 FT MSL
 STICK UP: 2.6 FT
 DIAMETER OF RISER PIPE (in.): 2.0
 DIAMETER OF BOREHOLE (in.): 6.0
 CONCRETE SEAL DEPTH (ft. bgs): 2.5
 TYPE AND AMOUNT OF ANNULAR SEAL: HIGH SOLIDS BENTONITE
 TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5
 TYPE AND AMOUNT OF BENTONITE SEAL: 3/8" BENTONITE CHIPS - 1 BUCKET
 TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 11.6 FINE: 10.8
 CENTRALIZER (yes (no) - TYPE: NONE
 TOP OF SCREEN DEPTH (ft. bgs): 14.0
 TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC
 SCREEN SLOT SIZE (in.): 0.010 IN
 SIZE OF SAND PACK: COARSE: #1 (20-30) FINE: #0 (30/65)
 AMOUNT OF SAND: COARSE: 4 BAGS FINE: 1/2 BAG
 BOTTOM OF SCREEN DEPTH (ft. bgs): 23.8
 BOTTOM OF WELL DEPTH (ft. bgs): 24.2
 BOTTOM OF FILTER PACK (ft. bgs): 24.2
 TYPE AND AMOUNT OF BACKFILL: NONE

TOTAL DEPTH OF BOREHOLE: 24.2 FT

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL.
50 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000)
MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON DECEMBER 8, 2016.
FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

CHECKED BY: J. INGRAM
 DATE CHECKED: 8/3/2017
 PREPARED BY: J. SUOZZI

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: GL153140604.0003B	
SITE NAME: SIOUX ENERGY CENTER		LOCATION: TMW-4	
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 430.0 FT MSL	
GEOLOGIST: G. MOREY	NORTHING: 1116959.3	EASTING: 878952.1	
DRILLER: R. GORDON	STATIC WATER LEVEL: 16.60 FT BTOC	COMPLETION DATE: 03/04/2022	
DRILLING COMPANY: CASCADE ENVIRONMENTAL, LLC		DRILLING METHODS: SONIC	



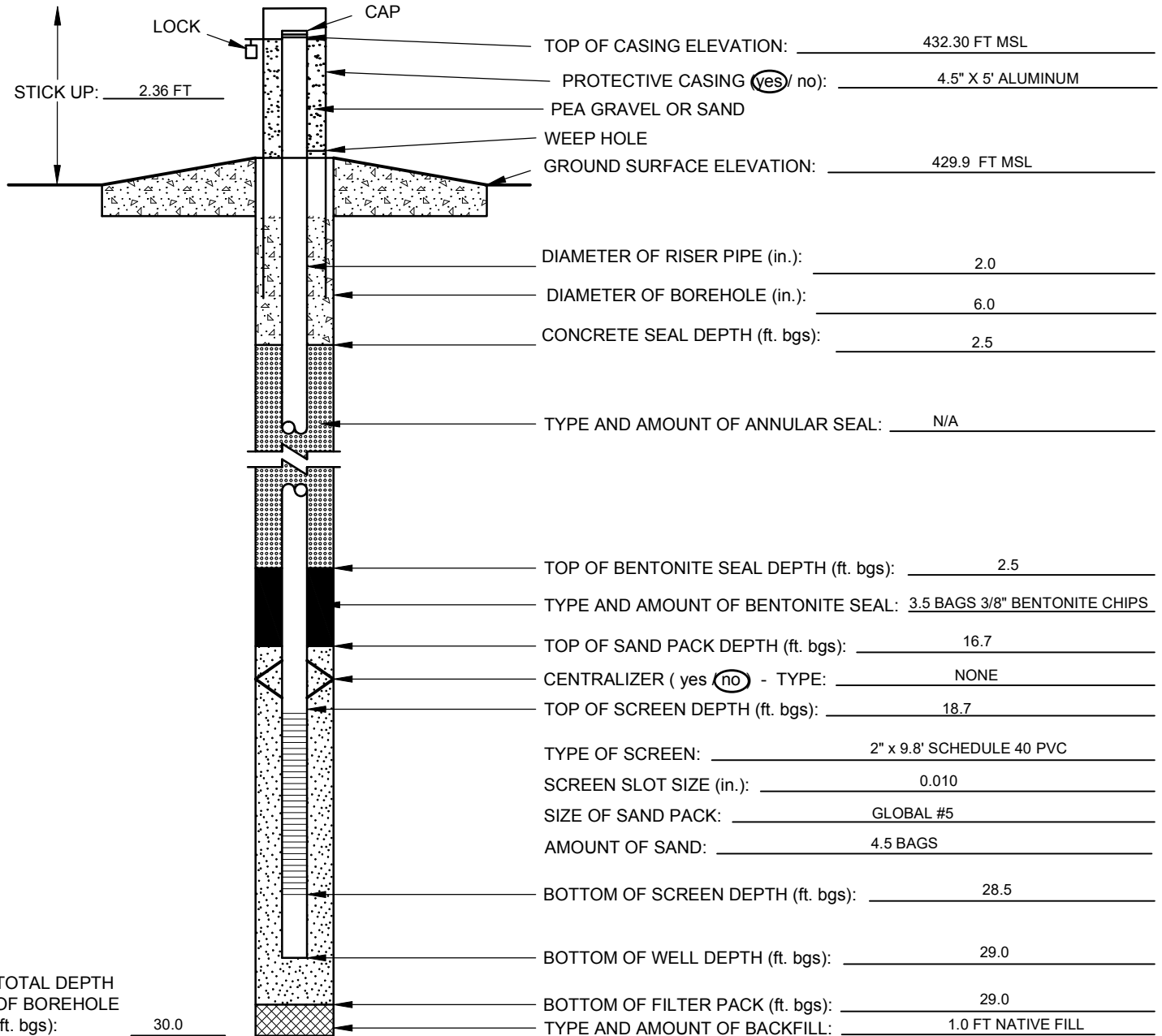
TOTAL DEPTH OF BOREHOLE (ft. bgs): 30.0

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. IN = INCHES.
 HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88.
 WELL SURVEYED BY ZAHNER ON MARCH 28, 2022. SAND AND BENTONITE BAGS WEIGH 50 POUNDS EACH. CONCRETE SEAL EXTENDS ABOVE SURFACE GRADE. APPROXIMATELY 75 GALLONS OF WATER USED DURING DRILLING.

CHECKED BY: E. SCHNEIDER
 DATE CHECKED: 7/26/2022

PREPARED BY: G. MOREY

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: GL153140604.0003B
SITE NAME: SIOUX ENERGY CENTER		LOCATION: TMW-5
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 429.9 FT MSL
GEOLOGIST: G. MOREY	NORTHING: 1116856.0	EASTING: 879563.9
DRILLER: R. GORDON	STATIC WATER LEVEL: 17.40 FT BTOC	COMPLETION DATE: 03/04/2022
DRILLING COMPANY: CASCADE ENVIRONMENTAL, LLC		DRILLING METHODS: SONIC



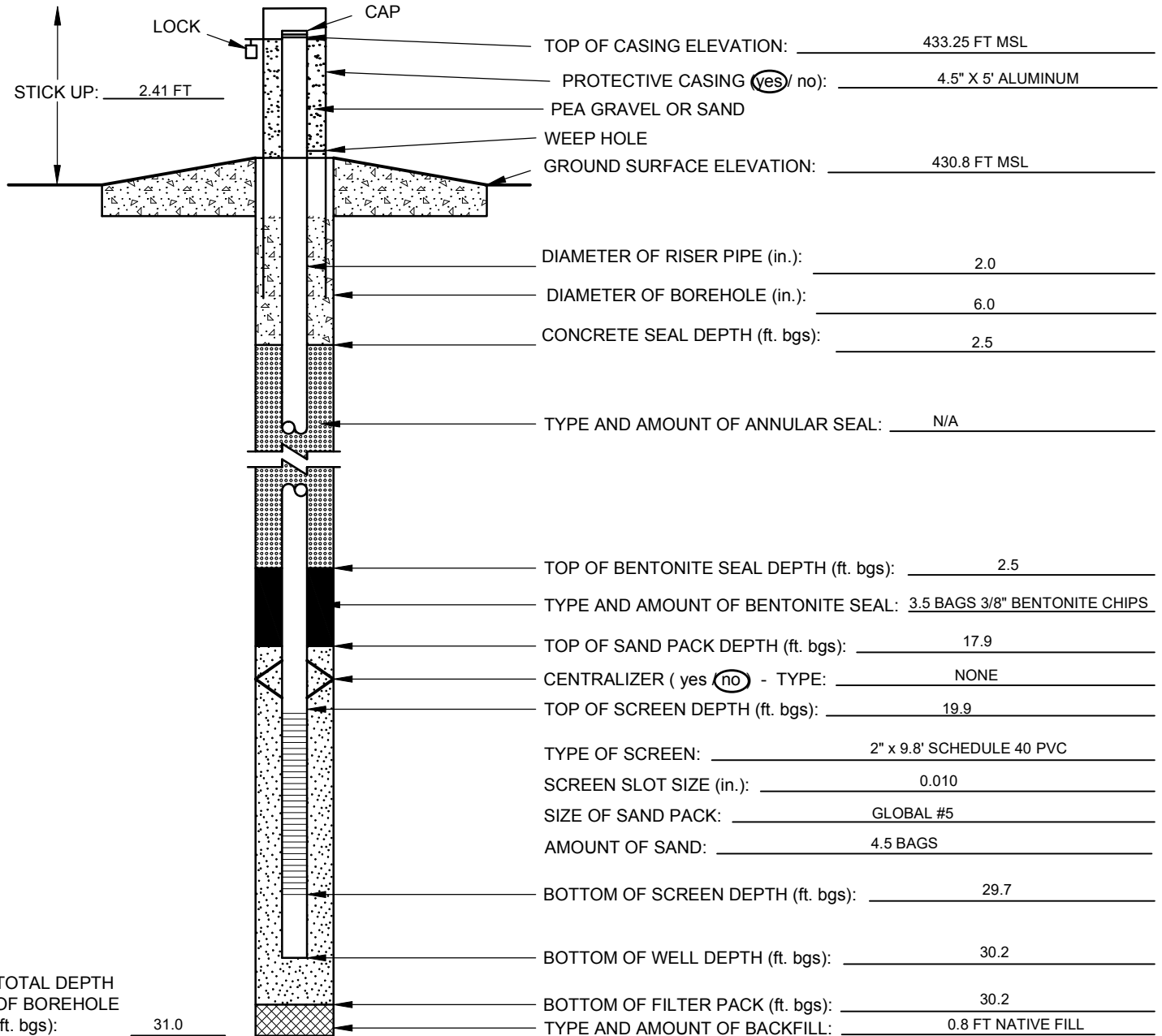
TOTAL DEPTH OF BOREHOLE (ft. bgs): 30.0

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. IN = INCHES.
 HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88.
 WELL SURVEYED BY ZAHNER ON MARCH 28, 2022. SAND AND BENTONITE BAGS WEIGH 50 POUNDS EACH. CONCRETE SEAL EXTENDS ABOVE SURFACE GRADE. APPROXIMATELY 75 GALLONS OF WATER WAS USED DURING DRILLING.

CHECKED BY: E. SCHNEIDER
 DATE CHECKED: 7/26/2022

PREPARED BY: G. MOREY

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: GL153140604.0003B
SITE NAME: SIOUX ENERGY CENTER		LOCATION: TMW-6
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 430.8 FT MSL
GEOLOGIST: G. MOREY	NORTHING: 1116909.9	EASTING: 880086.0
DRILLER: R. GORDON	STATIC WATER LEVEL: 17.26 FT BTOC	COMPLETION DATE: 03/04/2022
DRILLING COMPANY: CASCADE ENVIRONMENTAL, LLC		DRILLING METHODS: SONIC



TOTAL DEPTH OF BOREHOLE (ft. bgs): 31.0

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. IN = INCHES.
 HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88.
 WELL SURVEYED BY ZAHNER ON MARCH 28, 2022. SAND AND BENTONITE BAGS WEIGH 50 POUNDS EACH. CONCRETE SEAL EXTENDS ABOVE SURFACE GRADE. APPROXIMATELY 75 GALLONS OF WATER USED DURING DRILLING.

CHECKED BY: E. SCHNEIDER
 DATE CHECKED: 7/26/2022

PREPARED BY: G. MOREY

APPENDIX B

Laboratory Analytical Data

May 25, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60396735

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between March 30, 2022 and April 05, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60396735001	S-TMW-4	Water	04/04/22 11:50	04/05/22 04:32
60396735002	S-TMW-5	Water	04/04/22 10:30	04/05/22 04:32
60396735003	S-TMW-6	Water	04/04/22 09:17	04/05/22 04:32
60396735004	S-SCPD-DUP-1	Water	04/04/22 08:00	04/05/22 04:32
60396735005	S-SCPD-FB-1	Water	04/04/22 09:32	04/05/22 04:32
60396735006	S-SCPD-MS-1	Water	04/04/22 11:50	04/05/22 04:32
60396735007	S-SCPD-MSD-1	Water	04/04/22 11:50	04/05/22 04:32
60396338008	S-UG-2	Water	04/04/22 14:00	04/05/22 04:32
60396337002	S-BMW-1S	Water	03/29/22 14:00	03/30/22 04:23
60396337003	S-BMW-3S	Water	03/29/22 12:20	03/30/22 04:23

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60396735001	S-TMW-4	EPA 200.7	JLH, MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK, TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
		60396735002	S-TMW-5	EPA 200.7	JLH, MRV
EPA 200.8	JGP			6	PASI-K
EPA 7470	ALH			1	PASI-K
EPA 903.1	SLC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
SM 2320B	KB			1	PASI-K
SM 2540C	TNB			1	PASI-K
EPA 300.0	CRN2			3	PASI-K
60396735003	S-TMW-6			EPA 200.7	JLH, MRV
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
		60396735004	S-SCPD-DUP-1	EPA 200.7	JLH, MRV
EPA 200.8	JGP			6	PASI-K
EPA 7470	ALH			1	PASI-K
EPA 903.1	SLC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
SM 2320B	KB			1	PASI-K
SM 2540C	TNB			1	PASI-K
EPA 300.0	CRN2			3	PASI-K
60396735005	S-SCPD-FB-1			EPA 200.7	MRV
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	KB	1	PASI-K
		SM 2540C	MLD	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60396735007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60396338008	S-UG-2	EPA 200.7	MRV	7	PASI-K
		SM 2320B	KB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396337002	S-BMW-1S	EPA 200.7	JLH, MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60396337003	S-BMW-3S	EPA 200.7	JLH, MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		SM 2320B	LDB	1	PASI-K
		SM 2540C	TNB	1	PASI-K
		EPA 300.0	KB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-4 Lab ID: 60396735001 Collected: 04/04/22 11:50 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	219	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 17:30	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 17:30	7440-41-7	
Boron	99.3J	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:30	7440-42-8	
Calcium	141000	ug/L	400	143	2	04/07/22 13:51	04/11/22 19:01	7440-70-2	M1
Cobalt	3.4J	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 17:30	7440-48-4	
Iron	34.2J	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:30	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 17:30	7439-92-1	
Lithium	31.7	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 17:30	7439-93-2	
Magnesium	30200	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 17:30	7439-95-4	
Manganese	737	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:30	7439-96-5	
Molybdenum	5.1J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 17:30	7439-98-7	B
Potassium	6110	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:30	7440-09-7	
Sodium	4700	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:30	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.26J	ug/L	1.0	0.12	1	04/11/22 08:52	04/12/22 13:46	7440-36-0	
Arsenic	0.50J	ug/L	1.0	0.14	1	04/11/22 08:52	04/12/22 13:46	7440-38-2	
Cadmium	0.060J	ug/L	0.50	0.053	1	04/11/22 08:52	04/12/22 13:46	7440-43-9	
Chromium	0.52J	ug/L	1.0	0.31	1	04/11/22 08:52	04/12/22 13:46	7440-47-3	
Selenium	2.6	ug/L	1.0	0.18	1	04/11/22 08:52	04/12/22 13:46	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/11/22 08:52	04/12/22 13:46	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/12/22 16:12	04/13/22 10:40	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	437	mg/L	20.0	4.6	1		04/13/22 19:37		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	520	mg/L	10.0	10.0	1		04/08/22 15:18		
Total Dissolved Solids	530	mg/L	10.0	10.0	1		05/16/22 18:13		H5
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.6	mg/L	1.0	0.53	1		04/12/22 22:45	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		04/12/22 22:45	16984-48-8	
Sulfate	38.8	mg/L	10.0	5.5	10		04/13/22 21:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-5 **Lab ID: 60396735002** Collected: 04/04/22 10:30 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	239	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 17:37	7440-39-3	
Beryllium	1.0	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 17:37	7440-41-7	B
Boron	111	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:37	7440-42-8	
Calcium	146000	ug/L	400	143	2	04/07/22 13:51	04/11/22 19:08	7440-70-2	
Cobalt	5.0J	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 17:37	7440-48-4	
Iron	170	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:37	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 17:37	7439-92-1	
Lithium	37.1	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 17:37	7439-93-2	
Magnesium	27700	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 17:37	7439-95-4	
Manganese	535	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:37	7439-96-5	
Molybdenum	4.3J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 17:37	7439-98-7	B
Potassium	6110	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:37	7440-09-7	
Sodium	4680	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:37	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.20J	ug/L	1.0	0.12	1	04/11/22 08:52	04/12/22 13:57	7440-36-0	
Arsenic	0.47J	ug/L	1.0	0.14	1	04/11/22 08:52	04/12/22 13:57	7440-38-2	
Cadmium	0.057J	ug/L	0.50	0.053	1	04/11/22 08:52	04/12/22 13:57	7440-43-9	
Chromium	0.36J	ug/L	1.0	0.31	1	04/11/22 08:52	04/12/22 13:57	7440-47-3	
Selenium	1.8	ug/L	1.0	0.18	1	04/11/22 08:52	04/12/22 13:57	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/11/22 08:52	04/12/22 13:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/12/22 16:12	04/13/22 10:47	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	470	mg/L	20.0	4.6	1		04/14/22 15:00		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	533	mg/L	10.0	10.0	1		04/08/22 15:19		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	1.8	mg/L	1.0	0.53	1		04/08/22 16:52	16887-00-6	
Fluoride	0.28	mg/L	0.20	0.12	1		04/08/22 16:52	16984-48-8	
Sulfate	37.4	mg/L	5.0	2.8	5		04/08/22 17:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-6 **Lab ID: 60396735003** Collected: 04/04/22 09:17 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	254	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 17:39	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 17:39	7440-41-7	
Boron	112	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:39	7440-42-8	
Calcium	176000	ug/L	400	143	2	04/07/22 13:51	04/11/22 19:10	7440-70-2	
Cobalt	5.6	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 17:39	7440-48-4	
Iron	108	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:39	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 17:39	7439-92-1	
Lithium	41.3	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 17:39	7439-93-2	
Magnesium	31700	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 17:39	7439-95-4	
Manganese	909	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:39	7439-96-5	
Molybdenum	5.1J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 17:39	7439-98-7	B
Potassium	8450	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:39	7440-09-7	
Sodium	5750	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:39	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.22J	ug/L	1.0	0.12	1	04/11/22 08:52	04/12/22 14:00	7440-36-0	
Arsenic	0.57J	ug/L	1.0	0.14	1	04/11/22 08:52	04/12/22 14:00	7440-38-2	
Cadmium	0.10J	ug/L	0.50	0.053	1	04/11/22 08:52	04/12/22 14:00	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	04/11/22 08:52	04/12/22 14:00	7440-47-3	
Selenium	1.3	ug/L	1.0	0.18	1	04/11/22 08:52	04/12/22 14:00	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/11/22 08:52	04/12/22 14:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/12/22 16:12	04/13/22 10:49	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	537	mg/L	20.0	4.6	1		04/14/22 15:13		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	285	mg/L	10.0	10.0	1		04/08/22 15:19		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	7.1	mg/L	1.0	0.53	1		04/08/22 17:21	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		04/08/22 17:21	16984-48-8	
Sulfate	44.0	mg/L	10.0	5.5	10		04/08/22 17:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-SCPD-DUP-1 **Lab ID: 60396735004** Collected: 04/04/22 08:00 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	243	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 17:41	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 17:41	7440-41-7	
Boron	105	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:41	7440-42-8	
Calcium	148000	ug/L	400	143	2	04/07/22 13:51	04/11/22 19:12	7440-70-2	
Cobalt	4.1J	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 17:41	7440-48-4	
Iron	182	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:41	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 17:41	7439-92-1	
Lithium	37.0	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 17:41	7439-93-2	
Magnesium	28000	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 17:41	7439-95-4	
Manganese	539	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:41	7439-96-5	
Molybdenum	2.3J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 17:41	7439-98-7	B
Potassium	6270	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:41	7440-09-7	
Sodium	4820	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:41	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.19J	ug/L	1.0	0.12	1	04/11/22 08:52	04/12/22 14:03	7440-36-0	
Arsenic	0.46J	ug/L	1.0	0.14	1	04/11/22 08:52	04/12/22 14:03	7440-38-2	
Cadmium	0.056J	ug/L	0.50	0.053	1	04/11/22 08:52	04/12/22 14:03	7440-43-9	
Chromium	0.44J	ug/L	1.0	0.31	1	04/11/22 08:52	04/12/22 14:03	7440-47-3	
Selenium	1.9	ug/L	1.0	0.18	1	04/11/22 08:52	04/12/22 14:03	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/11/22 08:52	04/12/22 14:03	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/12/22 16:12	04/13/22 10:52	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	470	mg/L	20.0	4.6	1		04/14/22 15:20		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	540	mg/L	10.0	10.0	1		04/08/22 15:19		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	1.8	mg/L	1.0	0.53	1		04/08/22 17:49	16887-00-6	
Fluoride	0.28	mg/L	0.20	0.12	1		04/08/22 17:49	16984-48-8	
Sulfate	38.0	mg/L	5.0	2.8	5		04/08/22 18:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-SCPD-FB-1 **Lab ID: 60396735005** Collected: 04/04/22 09:32 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	<1.2	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 17:44	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 17:44	7440-41-7	
Boron	<7.1	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 17:44	7440-42-8	
Calcium	<71.3	ug/L	200	71.3	1	04/07/22 13:51	04/09/22 17:44	7440-70-2	
Cobalt	<1.4	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 17:44	7440-48-4	
Iron	<21.1	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 17:44	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 17:44	7439-92-1	
Lithium	<1.2	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 17:44	7439-93-2	
Magnesium	21.1J	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 17:44	7439-95-4	B
Manganese	<1.1	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 17:44	7439-96-5	
Molybdenum	<1.8	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 17:44	7439-98-7	
Potassium	<224	ug/L	500	224	1	04/07/22 13:51	04/09/22 17:44	7440-09-7	
Sodium	<166	ug/L	500	166	1	04/07/22 13:51	04/09/22 17:44	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	04/11/22 08:52	04/12/22 15:05	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	04/11/22 08:52	04/12/22 15:05	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	04/11/22 08:52	04/12/22 15:05	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	04/11/22 08:52	04/12/22 15:05	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	04/11/22 08:52	04/12/22 15:05	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/11/22 08:52	04/12/22 15:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/12/22 16:12	04/13/22 10:54	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	<4.6	mg/L	20.0	4.6	1		04/14/22 15:38		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	10.0	mg/L	5.0	5.0	1		05/19/22 12:36		H1
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<0.53	mg/L	1.0	0.53	1		04/08/22 18:45	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		04/08/22 18:45	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		04/08/22 18:45	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-UG-2 **Lab ID: 60396338008** Collected: 04/04/22 14:00 Received: 04/05/22 04:32 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	113	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:35	7440-42-8	
Calcium	97300	ug/L	200	71.3	1	04/07/22 13:51	04/09/22 16:35	7440-70-2	M1
Iron	<21.1	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:35	7439-89-6	
Magnesium	21400	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:35	7439-95-4	
Manganese	14.8	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:35	7439-96-5	
Potassium	5150	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:35	7440-09-7	
Sodium	43400	ug/L	500	166	1	04/07/22 13:51	04/10/22 15:01	7440-23-5	M1
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	326	mg/L	20.0	4.6	1		04/12/22 13:41		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	493	mg/L	10.0	10.0	1		04/08/22 15:18		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	33.7	mg/L	5.0	2.6	5		04/06/22 12:46	16887-00-6	
Fluoride	0.18J	mg/L	0.20	0.12	1		04/06/22 12:32	16984-48-8	
Sulfate	66.4	mg/L	5.0	2.8	5		04/06/22 12:46	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	178	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 16:38	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 16:38	7440-41-7	
Boron	68.0J	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:38	7440-42-8	
Calcium	173000	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:22	7440-70-2	
Cobalt	1.5J	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 16:38	7440-48-4	
Iron	<21.1	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:38	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 16:38	7439-92-1	
Lithium	5.8J	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 16:38	7439-93-2	
Magnesium	30000	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:38	7439-95-4	
Manganese	675	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:38	7439-96-5	
Molybdenum	2.6J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 16:38	7439-98-7	
Potassium	470J	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:38	7440-09-7	
Sodium	4900	ug/L	1000	332	2	04/07/22 13:51	04/11/22 18:22	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	04/06/22 09:01	04/06/22 17:16	7440-36-0	
Arsenic	0.98J	ug/L	1.0	0.14	1	04/06/22 09:01	04/06/22 17:16	7440-38-2	
Cadmium	0.14J	ug/L	0.50	0.053	1	04/06/22 09:01	04/06/22 17:16	7440-43-9	
Chromium	0.38J	ug/L	1.0	0.31	1	04/06/22 09:01	04/06/22 17:16	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	04/06/22 09:01	04/06/22 17:16	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/06/22 09:01	04/06/22 17:16	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/06/22 10:40	04/06/22 14:19	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	505	mg/L	20.0	4.6	1		04/05/22 10:05		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	591	mg/L	10.0	10.0	1		04/01/22 17:19		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	8.5	mg/L	1.0	0.53	1		04/01/22 18:04	16887-00-6	
Fluoride	0.30	mg/L	0.20	0.12	1		04/01/22 18:04	16984-48-8	
Sulfate	44.9	mg/L	5.0	2.8	5		04/01/22 18:18	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Pace Analytical Services - Kansas City									
Barium	140	ug/L	5.0	1.2	1	04/07/22 13:51	04/09/22 16:40	7440-39-3	
Beryllium	<0.24	ug/L	1.0	0.24	1	04/07/22 13:51	04/09/22 16:40	7440-41-7	
Boron	70.7J	ug/L	100	7.1	1	04/07/22 13:51	04/09/22 16:40	7440-42-8	
Calcium	147000	ug/L	400	143	2	04/07/22 13:51	04/11/22 18:29	7440-70-2	
Cobalt	<1.4	ug/L	5.0	1.4	1	04/07/22 13:51	04/09/22 16:40	7440-48-4	
Iron	<21.1	ug/L	50.0	21.1	1	04/07/22 13:51	04/09/22 16:40	7439-89-6	
Lead	<6.1	ug/L	10.0	6.1	1	04/07/22 13:51	04/09/22 16:40	7439-92-1	
Lithium	9.8J	ug/L	10.0	1.2	1	04/07/22 13:51	04/09/22 16:40	7439-93-2	
Magnesium	24100	ug/L	50.0	11.7	1	04/07/22 13:51	04/09/22 16:40	7439-95-4	
Manganese	215	ug/L	5.0	1.1	1	04/07/22 13:51	04/09/22 16:40	7439-96-5	
Molybdenum	2.4J	ug/L	20.0	1.8	1	04/07/22 13:51	04/09/22 16:40	7439-98-7	
Potassium	569	ug/L	500	224	1	04/07/22 13:51	04/09/22 16:40	7440-09-7	
Sodium	6270	ug/L	500	166	1	04/07/22 13:51	04/10/22 15:06	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	04/06/22 09:01	04/06/22 17:41	7440-36-0	
Arsenic	0.59J	ug/L	1.0	0.14	1	04/06/22 09:01	04/06/22 17:41	7440-38-2	
Cadmium	0.076J	ug/L	0.50	0.053	1	04/06/22 09:01	04/06/22 17:41	7440-43-9	
Chromium	0.45J	ug/L	1.0	0.31	1	04/06/22 09:01	04/06/22 17:41	7440-47-3	
Selenium	0.35J	ug/L	1.0	0.18	1	04/06/22 09:01	04/06/22 17:41	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/06/22 09:01	04/06/22 17:41	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	04/06/22 10:40	04/06/22 14:26	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	428	mg/L	20.0	4.6	1		04/05/22 10:05		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	508	mg/L	10.0	10.0	1		04/01/22 17:19		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	11.8	mg/L	1.0	0.53	1		04/01/22 18:32	16887-00-6	
Fluoride	0.36	mg/L	0.20	0.12	1		04/01/22 18:32	16984-48-8	
Sulfate	47.8	mg/L	5.0	2.8	5		04/01/22 18:46	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779899

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003

METHOD BLANK: 3110785

Matrix: Water

Associated Lab Samples: 60396337002, 60396337003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.12	0.20	0.12	04/06/22 14:14	

LABORATORY CONTROL SAMPLE: 3110786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110787 3110788

Parameter	Units	60396337003		3110788		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	ug/L	<0.12	5	5	4.6	4.8	92	96	75-125	4	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.

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 781002

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

METHOD BLANK: 3114928

Matrix: Water

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.12	0.20	0.12	04/13/22 10:01	

LABORATORY CONTROL SAMPLE: 3114929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3114930 3114931

Parameter	Units	60396735001		3114931		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	ug/L	<0.12	5	5	4.8	5.0	95	99	75-125	4	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780187	Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7	Analysis Description: 200.7 Metals, Total
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003, 60396338008

METHOD BLANK: 3111909 Matrix: Water

Associated Lab Samples: 60396337002, 60396337003, 60396338008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.2	5.0	1.2	04/09/22 15:48	
Beryllium	ug/L	<0.24	1.0	0.24	04/09/22 15:48	
Boron	ug/L	<7.1	100	7.1	04/09/22 15:48	
Calcium	ug/L	<71.3	200	71.3	04/09/22 15:48	
Cobalt	ug/L	<1.4	5.0	1.4	04/09/22 15:48	
Iron	ug/L	<21.1	50.0	21.1	04/09/22 15:48	
Lead	ug/L	<6.1	10.0	6.1	04/09/22 15:48	
Lithium	ug/L	<1.2	10.0	1.2	04/09/22 15:48	
Magnesium	ug/L	<11.7	50.0	11.7	04/09/22 15:48	
Manganese	ug/L	<1.1	5.0	1.1	04/09/22 15:48	
Molybdenum	ug/L	<1.8	20.0	1.8	04/09/22 15:48	
Potassium	ug/L	<224	500	224	04/09/22 15:48	
Sodium	ug/L	<166	500	166	04/12/22 13:11	

LABORATORY CONTROL SAMPLE: 3111910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	1030	103	85-115	
Boron	ug/L	1000	978	98	85-115	
Calcium	ug/L	10000	9160	92	85-115	
Cobalt	ug/L	1000	1060	106	85-115	
Iron	ug/L	10000	9920	99	85-115	
Lead	ug/L	1000	1060	106	85-115	
Lithium	ug/L	1000	888	89	85-115	
Magnesium	ug/L	10000	9930	99	85-115	
Manganese	ug/L	1000	963	96	85-115	
Molybdenum	ug/L	1000	1050	105	85-115	
Potassium	ug/L	10000	11100	111	85-115	
Sodium	ug/L	10000	11000	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111911 3111912

Parameter	Units	60396338004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Barium	ug/L	350	1000	1380	1000	1370	103	102	70-130	0	20	
Beryllium	ug/L	<0.24	1000	1030	1030	103	103	103	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111911												3111912	
Parameter	Units	60396338004		MS	MSD	MS	MSD	% Rec	% Rec	% Rec	Max	Qual	
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD		RPD
Boron	ug/L	93.3J	1000	1000	1000	1090	1100	100	101	70-130	1	20	
Calcium	ug/L	163000	10000	10000	10000	171000	172000	72	86	70-130	1	20	
Cobalt	ug/L	7.7	1000	1000	1000	1040	1040	104	103	70-130	1	20	
Iron	ug/L	2250	10000	10000	10000	12100	12100	99	98	70-130	1	20	
Lead	ug/L	<6.1	1000	1000	1000	1060	1050	106	105	70-130	0	20	
Lithium	ug/L	44.2	1000	1000	1000	1200	1200	115	115	70-130	0	20	
Magnesium	ug/L	28300	10000	10000	10000	36300	35800	80	75	70-130	1	20	
Manganese	ug/L	1110	1000	1000	1000	2100	2080	99	96	70-130	1	20	
Molybdenum	ug/L	<1.8	1000	1000	1000	1060	1060	106	106	70-130	0	20	
Potassium	ug/L	6150	10000	10000	10000	17900	17700	117	116	70-130	1	20	
Sodium	ug/L	5150	10000	10000	10000	16800	16700	116	116	70-130	0	20	

MATRIX SPIKE SAMPLE: 3111913											
Parameter	Units	60396338008		Spike	MS	MS	% Rec				
		Result	Conc.	Conc.	Result	% Rec	Limits	Qualifiers			
Barium	ug/L			1000	1340	106	70-130				
Beryllium	ug/L			1000	1050	105	70-130				
Boron	ug/L		113	1000	1140	103	70-130				
Calcium	ug/L		97300	10000	119000	216	70-130	M1			
Cobalt	ug/L			1000	1060	106	70-130				
Iron	ug/L		<21.1	10000	9940	99	70-130				
Lead	ug/L			1000	1080	108	70-130				
Lithium	ug/L			1000	1230	121	70-130				
Magnesium	ug/L		21400	10000	30000	87	70-130				
Manganese	ug/L		14.8	1000	995	98	70-130				
Molybdenum	ug/L			1000	1090	108	70-130				
Potassium	ug/L		5150	10000	17700	126	70-130				
Sodium	ug/L		43400	10000	56900	135	70-130	M1			

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

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

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

METHOD BLANK: 3111927 Matrix: Water

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.2	5.0	1.2	04/09/22 16:45	
Beryllium	ug/L	0.36J	1.0	0.24	04/09/22 16:45	
Boron	ug/L	<7.1	100	7.1	04/09/22 16:45	
Calcium	ug/L	<71.3	200	71.3	04/09/22 16:45	
Cobalt	ug/L	<1.4	5.0	1.4	04/09/22 16:45	
Iron	ug/L	<21.1	50.0	21.1	04/09/22 16:45	
Lead	ug/L	<6.1	10.0	6.1	04/09/22 16:45	
Lithium	ug/L	<1.2	10.0	1.2	04/09/22 16:45	
Magnesium	ug/L	16.6J	50.0	11.7	04/09/22 16:45	
Manganese	ug/L	<1.1	5.0	1.1	04/09/22 16:45	
Molybdenum	ug/L	2.4J	20.0	1.8	04/09/22 16:45	
Potassium	ug/L	<224	500	224	04/09/22 16:45	
Sodium	ug/L	<166	500	166	04/10/22 15:58	

LABORATORY CONTROL SAMPLE: 3111928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1020	102	85-115	
Beryllium	ug/L	1000	1030	103	85-115	
Boron	ug/L	1000	945	94	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Iron	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	873	87	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	10000	100	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111929 3111930

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60396337010 Result	Spike Conc.	Spike Conc.	MS Result						
Barium	ug/L	1000	1000	1130	1090	105	101	70-130	4	20	
Beryllium	ug/L	1000	1000	1070	1030	107	103	70-130	4	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111929												3111930	
Parameter	Units	60396337010 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Boron	ug/L	1450	1000	1000	2490	2460	104	101	70-130	1	20		
Calcium	ug/L	235000	10000	10000	253000	243000	184	78	70-130	4	20	M1	
Cobalt	ug/L		1000	1000	1050	1000	104	100	70-130	4	20		
Iron	ug/L	<21.1	10000	10000	10500	10100	105	101	70-130	4	20		
Lead	ug/L		1000	1000	1040	1010	104	101	70-130	3	20		
Lithium	ug/L		1000	1000	1310	1240	125	118	70-130	5	20		
Magnesium	ug/L	73300	10000	10000	81200	79900	79	66	70-130	2	20	M1	
Manganese	ug/L	390	1000	1000	1440	1380	105	99	70-130	4	20		
Molybdenum	ug/L		1000	1000	1100	1050	108	103	70-130	4	20		
Potassium	ug/L	5190	10000	10000	16300	16200	112	110	70-130	1	20		
Sodium	ug/L	56200	10000	10000	68100	68300	120	122	70-130	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3111931												3111932	
Parameter	Units	60396735001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium	ug/L	219	1000	1000	1260	1280	104	106	70-130	2	20		
Beryllium	ug/L	<0.24	1000	1000	1060	1090	106	109	70-130	3	20		
Boron	ug/L	99.3J	1000	1000	1090	1130	99	103	70-130	3	20		
Calcium	ug/L	141000	10000	10000	148000	159000	76	186	70-130	7	20	M1	
Cobalt	ug/L	3.4J	1000	1000	1040	1070	104	107	70-130	3	20		
Iron	ug/L	34.2J	10000	10000	10400	10600	104	106	70-130	2	20		
Lead	ug/L	<6.1	1000	1000	1050	1070	105	107	70-130	2	20		
Lithium	ug/L	31.7	1000	1000	1130	1160	110	113	70-130	3	20		
Magnesium	ug/L	30200	10000	10000	39000	39500	88	93	70-130	1	20		
Manganese	ug/L	737	1000	1000	1790	1830	105	109	70-130	2	20		
Molybdenum	ug/L	5.1J	1000	1000	1060	1090	106	108	70-130	2	20		
Potassium	ug/L	6110	10000	10000	17000	17600	109	115	70-130	4	20		
Sodium	ug/L	4700	10000	10000	16000	16200	113	115	70-130	2	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779855

Analysis Method: EPA 200.8

QC Batch Method: EPA 200.8

Analysis Description: 200.8 MET

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003

METHOD BLANK: 3110599

Matrix: Water

Associated Lab Samples: 60396337002, 60396337003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	04/06/22 17:09	
Arsenic	ug/L	<0.14	1.0	0.14	04/06/22 17:09	
Cadmium	ug/L	<0.053	0.50	0.053	04/06/22 17:09	
Chromium	ug/L	<0.31	1.0	0.31	04/06/22 17:09	
Selenium	ug/L	<0.18	1.0	0.18	04/06/22 17:09	
Thallium	ug/L	<0.15	1.0	0.15	04/06/22 17:09	

LABORATORY CONTROL SAMPLE: 3110600

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.1	100	85-115	
Arsenic	ug/L	40	40.5	101	85-115	
Cadmium	ug/L	40	41.2	103	85-115	
Chromium	ug/L	40	41.7	104	85-115	
Selenium	ug/L	40	41.3	103	85-115	
Thallium	ug/L	40	39.4	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110601 3110602

Parameter	Units	60396337002		3110601		3110602		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Antimony	ug/L	<0.12	40	40	40	39.8	39.6	99	99	99	70-130	0	20	
Arsenic	ug/L	0.98J	40	40	40	41.4	41.2	101	101	101	70-130	0	20	
Cadmium	ug/L	0.14J	40	40	40	40.0	40.0	100	100	100	70-130	0	20	
Chromium	ug/L	0.38J	40	40	40	41.7	42.0	103	104	104	70-130	1	20	
Selenium	ug/L	<0.18	40	40	40	39.2	39.4	98	98	98	70-130	0	20	
Thallium	ug/L	<0.15	40	40	40	41.6	41.4	104	103	103	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780591 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

METHOD BLANK: 3113591 Matrix: Water

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	04/12/22 13:42	
Arsenic	ug/L	<0.14	1.0	0.14	04/12/22 13:42	
Cadmium	ug/L	<0.053	0.50	0.053	04/12/22 13:42	
Chromium	ug/L	<0.31	1.0	0.31	04/12/22 13:42	
Selenium	ug/L	<0.18	1.0	0.18	04/12/22 13:42	
Thallium	ug/L	<0.15	1.0	0.15	04/12/22 13:42	

LABORATORY CONTROL SAMPLE: 3113592

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.7	104	85-115	
Arsenic	ug/L	40	40.9	102	85-115	
Cadmium	ug/L	40	43.3	108	85-115	
Chromium	ug/L	40	42.2	106	85-115	
Selenium	ug/L	40	42.8	107	85-115	
Thallium	ug/L	40	41.8	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3113593 3113594

Parameter	Units	60396735001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	ug/L	0.26J	40	40	44.9	43.7	112	109	70-130	3	20		
Arsenic	ug/L	0.50J	40	40	40.6	39.0	100	96	70-130	4	20		
Cadmium	ug/L	0.060J	40	40	41.3	40.2	103	100	70-130	3	20		
Chromium	ug/L	0.52J	40	40	39.3	38.2	97	94	70-130	3	20		
Selenium	ug/L	2.6	40	40	43.1	41.2	101	96	70-130	5	20		
Thallium	ug/L	<0.15	40	40	38.5	37.4	96	93	70-130	3	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3113596 3113595

Parameter	Units	60396333011		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	ug/L	<0.12	40	40	45.4	44.3	113	111	70-130	2	20		
Arsenic	ug/L	1.9	40	40	42.9	42.2	103	101	70-130	2	20		
Cadmium	ug/L	<0.053	40	40	42.1	41.2	105	103	70-130	2	20		
Chromium	ug/L	0.43J	40	40	40.8	40.2	101	99	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameter	Units	3113596		3113595		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60396333011 Result	MS Spike Conc.	MSD Spike Conc.									
Selenium	ug/L	<0.18	40	40	41.9	41.1	105	103	70-130	2	20		
Thallium	ug/L	<0.15	40	40	39.0	38.1	98	95	70-130	2	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779612

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003

METHOD BLANK: 3109702

Matrix: Water

Associated Lab Samples: 60396337002, 60396337003

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

LABORATORY CONTROL SAMPLE: 3109703

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

SAMPLE DUPLICATE: 3109704

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

SAMPLE DUPLICATE: 3109705

Parameter	Units	60396339002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	328	330	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780885

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396338008

METHOD BLANK: 3114450

Matrix: Water

Associated Lab Samples: 60396338008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	04/12/22 13:31	

LABORATORY CONTROL SAMPLE: 3114451

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	493	99	90-110	

SAMPLE DUPLICATE: 3114455

Parameter	Units	60397293004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	443	449	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780896

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735001

METHOD BLANK: 3114512

Matrix: Water

Associated Lab Samples: 60396735001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	04/13/22 16:56	

LABORATORY CONTROL SAMPLE: 3114513

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	491	98	90-110	

SAMPLE DUPLICATE: 3114516

Parameter	Units	60396332004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	95.3	95.7	0	10	

SAMPLE DUPLICATE: 3114517

Parameter	Units	60396333011 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	291	288	1	10	

SAMPLE DUPLICATE: 3114518

Parameter	Units	60396735001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	437	442	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 781269	Analysis Method: SM 2320B
QC Batch Method: SM 2320B	Analysis Description: 2320B Alkalinity
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735002, 60396735003, 60396735004, 60396735005

METHOD BLANK: 3115960 Matrix: Water
Associated Lab Samples: 60396735002, 60396735003, 60396735004, 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	04/14/22 14:50	

LABORATORY CONTROL SAMPLE: 3115961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	492	98	90-110	

SAMPLE DUPLICATE: 3115962

Parameter	Units	60396735002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	470	468	0	10	

SAMPLE DUPLICATE: 3115963

Parameter	Units	60396332012 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	186	189	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779231	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003

METHOD BLANK: 3108391 Matrix: Water

Associated Lab Samples: 60396337002, 60396337003

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

LABORATORY CONTROL SAMPLE: 3108392

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

SAMPLE DUPLICATE: 3108393

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780462 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60396338008, 60396735001, 60396735002, 60396735003, 60396735004

METHOD BLANK: 3112983 Matrix: Water
 Associated Lab Samples: 60396338008, 60396735001, 60396735002, 60396735003, 60396735004

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

LABORATORY CONTROL SAMPLE: 3112984

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

SAMPLE DUPLICATE: 3112985

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

SAMPLE DUPLICATE: 3112986

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 787090

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735001

METHOD BLANK: 3137539

Matrix: Water

Associated Lab Samples: 60396735001

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

LABORATORY CONTROL SAMPLE: 3137540

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

SAMPLE DUPLICATE: 3137541

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

SAMPLE DUPLICATE: 3137542

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

SAMPLE DUPLICATE: 3137543

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

SAMPLE DUPLICATE: 3137544

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

SAMPLE DUPLICATE: 3137545

Parameter	Units	60397347017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	815	821	1	10	H1

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 787614

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735005

METHOD BLANK: 3139491

Matrix: Water

Associated Lab Samples: 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/19/22 12:35	

LABORATORY CONTROL SAMPLE: 3139492

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

SAMPLE DUPLICATE: 3139493

Parameter	Units	60396735005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	10.0	<5.0		10	H1

SAMPLE DUPLICATE: 3139494

Parameter	Units	60400398005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	504	499	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779018

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396337002, 60396337003

METHOD BLANK: 3107513

Matrix: Water

Associated Lab Samples: 60396337002, 60396337003

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

LABORATORY CONTROL SAMPLE: 3107514

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

MATRIX SPIKE SAMPLE: 3107517

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3107518 3107519

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

SAMPLE DUPLICATE: 3107520

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 779776

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396338008

METHOD BLANK: 3110383

Matrix: Water

Associated Lab Samples: 60396338008

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

METHOD BLANK: 3114219

Matrix: Water

Associated Lab Samples: 60396338008

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

METHOD BLANK: 3114244

Matrix: Water

Associated Lab Samples: 60396338008

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

LABORATORY CONTROL SAMPLE: 3110384

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

LABORATORY CONTROL SAMPLE: 3114220

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

LABORATORY CONTROL SAMPLE: 3114245

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110385 3110386

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3110389 3110390

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

SAMPLE DUPLICATE: 3110388

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

SAMPLE DUPLICATE: 3110391

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 780288 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60396735002, 60396735003, 60396735004, 60396735005

METHOD BLANK: 3112209 Matrix: Water
 Associated Lab Samples: 60396735002, 60396735003, 60396735004, 60396735005

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

METHOD BLANK: 3115498 Matrix: Water
 Associated Lab Samples: 60396735002, 60396735003, 60396735004, 60396735005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/12/22 08:49	
Fluoride	mg/L	<0.12	0.20	0.12	04/12/22 08:49	
Sulfate	mg/L	<0.55	1.0	0.55	04/12/22 08:49	

LABORATORY CONTROL SAMPLE: 3112210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

LABORATORY CONTROL SAMPLE: 3115499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	101	90-110	
Fluoride	mg/L	2.5	2.3	91	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3112212 3112213

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		20239159004 Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	69.2	5	5	73.9	74.0	93	95	80-120	0	15 E
Fluoride	mg/L	ND	2.5	2.5	2.8	2.3	111	90	80-120	21	15 R1
Sulfate	mg/L	363	5	5	364	364	23	20	80-120	0	15 E,M1

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

SAMPLE DUPLICATE: 3112211

Parameter	Units	20239159004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	69.2	69.3	0	15	E
Fluoride	mg/L	ND	<0.12		15	
Sulfate	mg/L	363	363	0	15	E

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60396735

QC Batch: 780821 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735001

METHOD BLANK: 3114252 Matrix: Water

Associated Lab Samples: 60396735001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/12/22 11:08	
Fluoride	mg/L	<0.12	0.20	0.12	04/12/22 11:08	
Sulfate	mg/L	<0.55	1.0	0.55	04/12/22 11:08	

METHOD BLANK: 3117292 Matrix: Water

Associated Lab Samples: 60396735001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	04/13/22 08:51	
Fluoride	mg/L	<0.12	0.20	0.12	04/13/22 08:51	
Sulfate	mg/L	<0.55	1.0	0.55	04/13/22 08:51	

LABORATORY CONTROL SAMPLE: 3114253

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.4	108	90-110	
Fluoride	mg/L	2.5	2.3	91	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

LABORATORY CONTROL SAMPLE: 3117293

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	92	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE SAMPLE: 3114254

Parameter	Units	60397128034 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1810	1000	2750	94	80-120	
Fluoride	mg/L	ND	500	438	88	80-120	
Sulfate	mg/L	353	1000	1260	91	80-120	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3114255												3114256	
Parameter	Units	60396735001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max		
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual	
Chloride	mg/L	2.6	5	5	7.4	7.4	96	96	80-120	0	15		
Fluoride	mg/L	<0.12	2.5	2.5	2.3	2.3	92	92	80-120	0	15		
Sulfate	mg/L	38.8	50	50	94.4	94.9	111	112	80-120	1	15		

SAMPLE DUPLICATE: 3114257

Parameter	Units	60396735001		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Chloride	mg/L	2.6	2.6	2.6	0	15	
Fluoride	mg/L	<0.12	0.29	0.29		15	
Sulfate	mg/L	38.8	38.8	38.8	0	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-4 **Lab ID: 60396735001** Collected: 04/04/22 11:50 Received: 04/05/22 04:32 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.326 ± 0.263 (0.147) C:NA T:79%	pCi/L	04/25/22 16:14	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	1.04 ± 0.509 (0.877) C:68% T:79%	pCi/L	04/19/22 11:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-5 **Lab ID: 60396735002** Collected: 04/04/22 10:30 Received: 04/05/22 04:32 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.442 ± 0.391 (0.580) C:NA T:87%	pCi/L	04/25/22 16:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.31 ± 0.468 (0.651) C:71% T:87%	pCi/L	04/19/22 11:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-TMW-6 **Lab ID: 60396735003** Collected: 04/04/22 09:17 Received: 04/05/22 04:32 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0521 ± 0.421 (0.827) C:NA T:80%	pCi/L	04/25/22 16:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.18 ± 0.474 (0.701) C:67% T:80%	pCi/L	04/19/22 11:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Sample: S-SCPD-DUP-1 **Lab ID: 60396735004** Collected: 04/04/22 08:00 Received: 04/05/22 04:32 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.321 ± 0.414 (0.689) C:NA T:88%	pCi/L	04/25/22 16:14	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	1.39 ± 0.489 (0.657) C:67% T:88%	pCi/L	04/19/22 11:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-FB-1 Lab ID: 60396735005 Collected: 04/04/22 09:32 Received: 04/05/22 04:32 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.299 ± 0.279 (0.748) C:NA T:84%	pCi/L	04/25/22 16:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.120 ± 0.334 (0.752) C:66% T:84%	pCi/L	04/19/22 11:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60396735006 Collected: 04/04/22 11:50 Received: 04/05/22 04:32 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.151 ± 0.297 (0.710) C:NA T:87%	pCi/L	04/25/22 16:14	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.457 ± 0.375 (0.746) C:71% T:87%	pCi/L	04/19/22 14:41	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MSD-1 Lab ID: 60396735007 Collected: 04/04/22 11:50 Received: 04/05/22 04:32 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0469 ± 0.243 (0.505) C:NA T:82%	pCi/L	04/25/22 16:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.451 ± 0.364 (0.714) C:69% T:82%	pCi/L	04/19/22 14:41	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-BMW-1S Lab ID: 60396337002 Collected: 03/29/22 14:00 Received: 03/30/22 04:23 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.283 ± 0.264 (0.347) C:NA T:88%	pCi/L	04/28/22 13:28	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.467 ± 0.635 (1.36) C:76% T:88%	pCi/L	04/20/22 21:46	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-BMW-3S Lab ID: 60396337003 Collected: 03/29/22 12:20 Received: 03/30/22 04:23 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0831 ± 0.379 (0.225) C:NA T:93%	pCi/L	04/27/22 16:23	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	-0.0142 ± 0.558 (1.30) C:72% T:86%	pCi/L	04/26/22 16:48	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 496261

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005, 60396735006, 60396735007

METHOD BLANK: 2401651

Matrix: Water

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005, 60396735006, 60396735007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0572 ± 0.261 (0.615) C:NA T:80%	pCi/L	04/25/22 15:58	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 496688

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396337002

METHOD BLANK: 2403505

Matrix: Water

Associated Lab Samples: 60396337002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.670 ± 0.346 (0.587) C:76% T:90%	pCi/L	04/20/22 16:30	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 497782

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396337003

METHOD BLANK: 2409269

Matrix: Water

Associated Lab Samples: 60396337003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.264 ± 0.311 (0.655) C:80% T:88%	pCi/L	04/26/22 13:21	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 496262

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005, 60396735006, 60396735007

METHOD BLANK: 2401653

Matrix: Water

Associated Lab Samples: 60396735001, 60396735002, 60396735003, 60396735004, 60396735005, 60396735006, 60396735007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0446 ± 0.340 (0.784) C:70% T:80%	pCi/L	04/19/22 11:36	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 496687

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396337002

METHOD BLANK: 2403504

Matrix: Water

Associated Lab Samples: 60396337002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0453 ± 0.235 (0.544) C:NA T:90%	pCi/L	04/28/22 12:28	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

QC Batch: 497781

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396337003

METHOD BLANK: 2409265

Matrix: Water

Associated Lab Samples: 60396337003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0680 ± 0.310 (0.184) C:NA T:94%	pCi/L	04/27/22 16:06	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

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.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

H1 Analysis conducted outside the EPA method holding time.

H5 Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

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

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60396337002	S-BMW-1S	EPA 200.7	780187	EPA 200.7	780329
60396337003	S-BMW-3S	EPA 200.7	780187	EPA 200.7	780329
60396338008	S-UG-2	EPA 200.7	780187	EPA 200.7	780329
60396735001	S-TMW-4	EPA 200.7	780191	EPA 200.7	780331
60396735002	S-TMW-5	EPA 200.7	780191	EPA 200.7	780331
60396735003	S-TMW-6	EPA 200.7	780191	EPA 200.7	780331
60396735004	S-SCPD-DUP-1	EPA 200.7	780191	EPA 200.7	780331
60396735005	S-SCPD-FB-1	EPA 200.7	780191	EPA 200.7	780331
60396337002	S-BMW-1S	EPA 200.8	779855	EPA 200.8	779952
60396337003	S-BMW-3S	EPA 200.8	779855	EPA 200.8	779952
60396735001	S-TMW-4	EPA 200.8	780591	EPA 200.8	780678
60396735002	S-TMW-5	EPA 200.8	780591	EPA 200.8	780678
60396735003	S-TMW-6	EPA 200.8	780591	EPA 200.8	780678
60396735004	S-SCPD-DUP-1	EPA 200.8	780591	EPA 200.8	780678
60396735005	S-SCPD-FB-1	EPA 200.8	780591	EPA 200.8	780678
60396337002	S-BMW-1S	EPA 7470	779899	EPA 7470	779979
60396337003	S-BMW-3S	EPA 7470	779899	EPA 7470	779979
60396735001	S-TMW-4	EPA 7470	781002	EPA 7470	781125
60396735002	S-TMW-5	EPA 7470	781002	EPA 7470	781125
60396735003	S-TMW-6	EPA 7470	781002	EPA 7470	781125
60396735004	S-SCPD-DUP-1	EPA 7470	781002	EPA 7470	781125
60396735005	S-SCPD-FB-1	EPA 7470	781002	EPA 7470	781125
60396337002	S-BMW-1S	EPA 903.1	496687		
60396337003	S-BMW-3S	EPA 903.1	497781		
60396735001	S-TMW-4	EPA 903.1	496261		
60396735002	S-TMW-5	EPA 903.1	496261		
60396735003	S-TMW-6	EPA 903.1	496261		
60396735004	S-SCPD-DUP-1	EPA 903.1	496261		
60396735005	S-SCPD-FB-1	EPA 903.1	496261		
60396735006	S-SCPD-MS-1	EPA 903.1	496261		
60396735007	S-SCPD-MSD-1	EPA 903.1	496261		
60396337002	S-BMW-1S	EPA 904.0	496688		
60396337003	S-BMW-3S	EPA 904.0	497782		
60396735001	S-TMW-4	EPA 904.0	496262		
60396735002	S-TMW-5	EPA 904.0	496262		
60396735003	S-TMW-6	EPA 904.0	496262		
60396735004	S-SCPD-DUP-1	EPA 904.0	496262		
60396735005	S-SCPD-FB-1	EPA 904.0	496262		
60396735006	S-SCPD-MS-1	EPA 904.0	496262		
60396735007	S-SCPD-MSD-1	EPA 904.0	496262		
60396337002	S-BMW-1S	SM 2320B	779612		
60396337003	S-BMW-3S	SM 2320B	779612		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60396735

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60396338008	S-UG-2	SM 2320B	780885		
60396735001	S-TMW-4	SM 2320B	780896		
60396735002	S-TMW-5	SM 2320B	781269		
60396735003	S-TMW-6	SM 2320B	781269		
60396735004	S-SCPD-DUP-1	SM 2320B	781269		
60396735005	S-SCPD-FB-1	SM 2320B	781269		
60396337002	S-BMW-1S	SM 2540C	779231		
60396337003	S-BMW-3S	SM 2540C	779231		
60396338008	S-UG-2	SM 2540C	780462		
60396735001	S-TMW-4	SM 2540C	780462		
60396735001	S-TMW-4	SM 2540C	787090		
60396735002	S-TMW-5	SM 2540C	780462		
60396735003	S-TMW-6	SM 2540C	780462		
60396735004	S-SCPD-DUP-1	SM 2540C	780462		
60396735005	S-SCPD-FB-1	SM 2540C	787614		
60396337002	S-BMW-1S	EPA 300.0	779018		
60396337003	S-BMW-3S	EPA 300.0	779018		
60396338008	S-UG-2	EPA 300.0	779776		
60396735001	S-TMW-4	EPA 300.0	780821		
60396735002	S-TMW-5	EPA 300.0	780288		
60396735003	S-TMW-6	EPA 300.0	780288		
60396735004	S-SCPD-DUP-1	EPA 300.0	780288		
60396735005	S-SCPD-FB-1	EPA 300.0	780288		

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DC#_ Title: ENV-FRM-LENE-0009_Sample (

Revision: 2

Effective Date: 01/12/2022

WO#: 60396735



60396735

Client Name: Golden

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T299 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.2/1.9 Corr. Factor -0.2 Corrected 2.0/1.7

Date and initials of person examining contents:

Temperature should be above freezing to 6°C 14.4/12.3 14.2/12.1

4/5/22

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>NT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

LOT#: 55192

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A

Required Client Information:

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

Section B

Required Project Information:

Report To: **Jeffrey Ingram**
 Copy To: **Eric Schneider, Ryan Feldman, Brendan Talbert**
 Company Name: **Golder Associates USA, Inc.**
 Attention:
 Address:
 Purchase Order No.: **COC #12**
 Project Name: **Ameren Sioux Energy Center SCPD**
 Project Number: **153140604.0003B**
 Pace Quote Reference: **Jamie Church**
 Pace Project Manager: **Jamie Church**
 Pace Profile #: **9285**

Section C

Invoice Information:

Page: 1 of 1

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location: MO
 STATE:

ITEM #	Section D Required Client Information	Valid Matrix Codes	MATRIX CODE	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS				UNPRESERVED	PRESERVATIVES						ANALYSIS TEST	Request Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Temp In °C	Received on	Custody Sealed	Cooler (Y/N)	Samples Intact (Y/N)									
					COMPOSITE START	COMPOSITE END/GRAV		DATE	TIME	DATE	TIME		DATE	TIME	H2SO4	HNO3	HCl	NaOH									Na2S2O3	Methanol	Other	Y	N	Y	N	Y	N
1		S-UG-2	WT G		4/4/22	1400		2	1																										
2		S-TMW-4	WT G		4/4/22	1150		4	3																										
3		S-TMW-5	WT G		4/4/22	1150		4	3																										
4		S-TMW-6	WT G		4/4/22	1150		4	3																										
5		S-SCPD-DUP-1	WT G		4/4/22	1150		4	3																										
6		S-SCPD-FB-1	WT G		4/4/22	1150		4	3																										
7		S-SCPD-MS-1	WT G		4/4/22	1150		4	3																										
8		S-SCPD-MSD-1	WT G		4/4/22	1150		4	3																										
9		S-BMW-1S	WT G		4/4/22	1150		4	3																										
10		S-BMW-3S	WT G		4/4/22	1150		4	3																										
11			WT G																																
12			WT G																																

60396735
Pace Project No./ Lab I.D.

MS - MSD taken @
S-TMW-4

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Angela McInew	4/4	1545	Angela McInew	4/4	1545	Y
Angela McInew	4/4	1545	Angela McInew	4/5	0432	Y
						1.7
						N

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Eric Schum
 SIGNATURE of SAMPLER: *[Signature]*
 DATE Signed (MM/DD/YYYY): 04/04/22

Walden

9285

Profile #

Client:

Notes

Site:

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

Container Codes

Glass	Plastic	Misc.
DG9B 40mL bisulfate clear vial	BP1C 1L NaOH plastic	I Wipe/Swab
DG9H 40mL HCl amber vial	BP1N 1L HNO3 plastic	SP5T 120mL Coliform Na Thiosulfate
DG9M 40mL MeOH clear vial	BP1S 1L H2SO4 plastic	ZPLC Ziploc Bag
DG9Q 40mL TSP amber vial	BP1U 1L unpreserved plastic	AF Air Filter
DG9S 40mL H2SO4 amber vial	BP1Z 1L NaOH, Zn Acetate	C Air Cassettes
DG9T 40mL Na Thio amber vial	BP2C 500mL NaOH plastic	R Terracore Kit
DG9U 40mL amber unpreserved	BP2N 500mL HNO3 plastic	U Summa Can
VG9H 40mL HCl clear vial	BP2S 500mL H2SO4 plastic	
VG9T 40mL Na Thio. clear vial	BP2U 500mL unpreserved plastic	
VG9U 40mL unpreserved clear vial	BP2Z 500mL NaOH, Zn Acetate	
BG1S 1liter H2SO4 clear glass	BP3C 250mL NaOH plastic	
BG1U 1liter unpres glass	BP3F 250mL HNO3 plastic - field filtered	
BG3H 250mL HCL Clear glass	BP3N 250mL HNO3 plastic	
BG3U 250mL Unpres Clear glass	BP3U 250mL unpreserved plastic	
WGDU 16oz clear soil jar	BP3S 250mL H2SO4 plastic	
	BP3Z 250mL NaOH, Zn Acetate	
	BP4U 125mL unpreserved plastic	
	BP4N 125mL HNO3 plastic	
	BP4S 125mL H2SO4 plastic	
	WPDU 16oz unpreserved plastic	

Work Order Number: *60396735*

MEMORANDUM

DATE June 21, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL ann.muehlfarth@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #1 - DATA PACKAGE 60396735

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 6/21/2022

Laboratory: Pace Analytical

SDG #: 60396735

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-1, S-UG-2, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>3/29/2022 - 4/4/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM/BTT/EMS</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

Comments/Notes:

TDS analyzed outside of hold time in S-TMW-4 and S-SCPD-FB-1. Results qualified as estimates.

Calcium, chloride, and sulfate analyzed at a dilution. No qualification necessary.

Blanks:

3111927: Beryllium (0.36J), magnesium (16.6J), molybdenum (2.4J). Associated with samples -35001 through -35005.

Results >10x blank or non-detect not qualified. Results <RL reported at RL and qualified as ND. Results >RL but <10x blank qualified as estimates.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

2403505: Radium-228 (0.670 ± 0.346). Associated with sample -37002. Result ND, no qualification necessary.

S-SCPD-FB-1 @ S-TMW-6: Magnesium (21.1J), TDS (10.0). Sample results >10x blank and RL, no qualification necessary.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: RPD exceeds limit (20%) for molybdenum (60.6%) and chromium (20%). Beryllium detected in parent sample, ND in duplicate.

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

MS/MSD:

3111913: MS % high for calcium, sodium. Associated with sample -38008. Only 1 QC indicator out, no qualification necessary.

3111929/3111930: MS % high for calcium, MSD % low for magnesium. MS/MSD performed on unrelated sample, no qualification necessary.

3111931/3111932: MSD % high for calcium. Associated with sample -35001. Only 1 QC indicator out, no qualification necessary.

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

3112212/3112213: MS/MSD % low for sulfate. 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
S-TMW-4 (re-analysis)	TDS	530	J	Analyzed outside of hold time
S-SCPD-FB-1	"	10.0	J	"
S-TMW-4	Molybdenum	20.0	UJ	Detected in MB, RL>result
S-TMW-6	"	20.0	UJ	"
S-SCPD-FB-1	Magnesium	50.0	UJ	"
S-TMW-5	Molybdenum	20.0	UJ	Dup RPD exceeds limit; Detected in MB, RL>result
"	Chromium	0.36	J	Dup RPD exceeds limit
"	Beryllium	1.0	J	Detected in sample, ND in dup; Detected in MB, 10x blank > result > RL
S-SCPD-DUP-1	Molybdenum	20.0	UJ	Dup RPD exceeds limit; Detected in MB, RL>result
"	Chromium	0.44	J	Dup RPD exceeds limit
"	Beryllium	0.24	UJ	Detected in sample, ND in dup

Signature: _____

Date: _____

6/21/2022

June 01, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60398419

Dear Jeffrey Ingram:

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

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

- Pace Analytical Services - Kansas City
- 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



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60396735008	S-TMW-4	Water	04/19/22 08:50	04/20/22 04:25
60396735009	S-TMW-5	Water	04/19/22 09:52	04/20/22 04:25
60396735010	S-TMW-6	Water	04/19/22 10:43	04/20/22 04:25
60396735011	S-SCPD-DUP-1	Water	04/19/22 08:00	04/20/22 04:25
60396735012	S-SCPD-FB-1	Water	04/19/22 10:10	04/20/22 04:25
60396735013	S-SCPD-MS-1	Water	04/19/22 10:43	04/20/22 04:25
60396735014	S-SCPD-MSD-1	Water	04/19/22 10:43	04/20/22 04:25

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60396735008	S-TMW-4	EPA 200.7	JDS	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735009	S-TMW-5	EPA 200.7	JDS	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735010	S-TMW-6	EPA 200.7	JDS	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735011	S-SCPD-DUP-1	EPA 200.7	JDS	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735012	S-SCPD-FB-1	EPA 200.7	JDS	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60396735013	S-SCPD-MS-1	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60396735014	S-SCPD-MSD-1	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-4 **Lab ID: 60396735008** Collected: 04/19/22 08:50 Received: 04/20/22 04:25 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	208	ug/L	5.0	0.51	1	04/26/22 09:43	05/04/22 17:57	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	04/26/22 09:43	05/04/22 17:57	7440-41-7	
Boron	118	ug/L	100	4.2	1	04/26/22 09:43	05/04/22 17:57	7440-42-8	
Calcium	134000	ug/L	200	33.7	1	04/26/22 09:43	05/04/22 17:57	7440-70-2	
Cobalt	1.7J	ug/L	5.0	0.82	1	04/26/22 09:43	05/04/22 17:57	7440-48-4	
Iron	25.6J	ug/L	50.0	5.6	1	04/26/22 09:43	05/04/22 17:57	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	04/26/22 09:43	05/04/22 17:57	7439-92-1	
Lithium	32.6	ug/L	10.0	5.6	1	04/26/22 09:43	05/04/22 17:57	7439-93-2	
Magnesium	31400	ug/L	50.0	27.1	1	04/26/22 09:43	05/04/22 17:57	7439-95-4	
Manganese	678	ug/L	5.0	0.24	1	04/26/22 09:43	05/04/22 17:57	7439-96-5	
Molybdenum	4.5J	ug/L	20.0	0.90	1	04/26/22 09:43	05/04/22 17:57	7439-98-7	
Potassium	5570	ug/L	500	87.6	1	04/26/22 09:43	05/04/22 17:57	7440-09-7	
Sodium	4460	ug/L	500	73.2	1	04/26/22 09:43	05/04/22 17:57	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.23J	ug/L	1.0	0.12	1	04/25/22 14:00	04/29/22 19:28	7440-36-0	
Arsenic	0.58J	ug/L	1.0	0.14	1	04/25/22 14:00	04/29/22 19:28	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	04/25/22 14:00	04/29/22 19:28	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	04/25/22 14:00	04/29/22 19:28	7440-47-3	
Selenium	2.6	ug/L	1.0	0.18	1	04/25/22 14:00	04/29/22 19:28	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/25/22 14:00	04/29/22 19:28	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	05/10/22 15:57	05/11/22 13:38	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	419	mg/L	20.0	4.6	1		04/25/22 20:28		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	512	mg/L	10.0	10.0	1		04/25/22 16:10		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.7	mg/L	1.0	0.53	1		04/28/22 03:01	16887-00-6	B
Fluoride	0.42	mg/L	0.20	0.12	1		04/28/22 03:01	16984-48-8	
Sulfate	39.2	mg/L	10.0	5.5	10		04/28/22 10:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-5 **Lab ID: 60396735009** Collected: 04/19/22 09:52 Received: 04/20/22 04:25 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	212	ug/L	5.0	0.51	1	04/26/22 09:43	05/04/22 17:59	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	04/26/22 09:43	05/04/22 17:59	7440-41-7	
Boron	99.8J	ug/L	100	4.2	1	04/26/22 09:43	05/04/22 17:59	7440-42-8	
Calcium	137000	ug/L	200	33.7	1	04/26/22 09:43	05/04/22 17:59	7440-70-2	
Cobalt	2.2J	ug/L	5.0	0.82	1	04/26/22 09:43	05/04/22 17:59	7440-48-4	
Iron	156	ug/L	50.0	5.6	1	04/26/22 09:43	05/04/22 17:59	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	04/26/22 09:43	05/04/22 17:59	7439-92-1	
Lithium	35.7	ug/L	10.0	5.6	1	04/26/22 09:43	05/04/22 17:59	7439-93-2	
Magnesium	26300	ug/L	50.0	27.1	1	04/26/22 09:43	05/04/22 17:59	7439-95-4	
Manganese	495	ug/L	5.0	0.24	1	04/26/22 09:43	05/04/22 17:59	7439-96-5	
Molybdenum	2.0J	ug/L	20.0	0.90	1	04/26/22 09:43	05/04/22 17:59	7439-98-7	
Potassium	5480	ug/L	500	87.6	1	04/26/22 09:43	05/04/22 17:59	7440-09-7	
Sodium	4420	ug/L	500	73.2	1	04/26/22 09:43	05/04/22 17:59	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.17J	ug/L	1.0	0.12	1	04/25/22 14:00	04/29/22 19:32	7440-36-0	
Arsenic	0.69J	ug/L	1.0	0.14	1	04/25/22 14:00	04/29/22 19:32	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	04/25/22 14:00	04/29/22 19:32	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	04/25/22 14:00	04/29/22 19:32	7440-47-3	
Selenium	0.67J	ug/L	1.0	0.18	1	04/25/22 14:00	04/29/22 19:32	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/25/22 14:00	04/29/22 19:32	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	05/10/22 15:57	05/11/22 13:40	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	427	mg/L	20.0	4.6	1		04/25/22 20:35		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	521	mg/L	10.0	10.0	1		04/25/22 16:10		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.0	mg/L	1.0	0.53	1		05/04/22 21:30	16887-00-6	B
Fluoride	0.40	mg/L	0.20	0.12	1		05/04/22 21:30	16984-48-8	
Sulfate	41.6	mg/L	5.0	2.8	5		05/04/22 21:44	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-6 **Lab ID: 60396735010** Collected: 04/19/22 10:43 Received: 04/20/22 04:25 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	238	ug/L	5.0	0.51	1	04/26/22 09:43	05/04/22 18:01	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	04/26/22 09:43	05/04/22 18:01	7440-41-7	
Boron	113	ug/L	100	4.2	1	04/26/22 09:43	05/04/22 18:01	7440-42-8	
Calcium	158000	ug/L	200	33.7	1	04/26/22 09:43	05/04/22 18:01	7440-70-2	
Cobalt	2.8J	ug/L	5.0	0.82	1	04/26/22 09:43	05/04/22 18:01	7440-48-4	
Iron	41.4J	ug/L	50.0	5.6	1	04/26/22 09:43	05/04/22 18:01	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	04/26/22 09:43	05/04/22 18:01	7439-92-1	
Lithium	38.7	ug/L	10.0	5.6	1	04/26/22 09:43	05/04/22 18:01	7439-93-2	
Magnesium	31400	ug/L	50.0	27.1	1	04/26/22 09:43	05/04/22 18:01	7439-95-4	
Manganese	751	ug/L	5.0	0.24	1	04/26/22 09:43	05/04/22 18:01	7439-96-5	
Molybdenum	4.4J	ug/L	20.0	0.90	1	04/26/22 09:43	05/04/22 18:01	7439-98-7	
Potassium	10200	ug/L	500	87.6	1	04/26/22 09:43	05/04/22 18:01	7440-09-7	
Sodium	5540	ug/L	500	73.2	1	04/26/22 09:43	05/04/22 18:01	7440-23-5	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony	0.19J	ug/L	1.0	0.12	1	04/25/22 14:00	04/29/22 19:39	7440-36-0	
Arsenic	0.61J	ug/L	1.0	0.14	1	04/25/22 14:00	04/29/22 19:39	7440-38-2	
Cadmium	0.084J	ug/L	0.50	0.053	1	04/25/22 14:00	04/29/22 19:39	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	04/25/22 14:00	04/29/22 19:39	7440-47-3	
Selenium	2.6	ug/L	1.0	0.18	1	04/25/22 14:00	04/29/22 19:39	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/25/22 14:00	04/29/22 19:39	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Kansas City							
Mercury	<0.064	ug/L	0.20	0.064	1	05/10/22 15:57	05/11/22 13:42	7439-97-6	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	473	mg/L	20.0	4.6	1		04/25/22 15:36		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	595	mg/L	10.0	10.0	1		04/25/22 16:10		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	6.5	mg/L	1.0	0.53	1		05/04/22 21:58	16887-00-6	
Fluoride	0.37	mg/L	0.20	0.12	1		05/04/22 21:58	16984-48-8	
Sulfate	44.8	mg/L	10.0	5.5	10		05/04/22 23:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-SCPD-DUP-1 **Lab ID: 60396735011** Collected: 04/19/22 08:00 Received: 04/20/22 04:25 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	211	ug/L	5.0	0.51	1	04/26/22 09:43	05/04/22 18:11	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	04/26/22 09:43	05/04/22 18:11	7440-41-7	
Boron	95.2J	ug/L	100	4.2	1	04/26/22 09:43	05/04/22 18:11	7440-42-8	
Calcium	136000	ug/L	200	33.7	1	04/26/22 09:43	05/04/22 18:11	7440-70-2	
Cobalt	2.0J	ug/L	5.0	0.82	1	04/26/22 09:43	05/04/22 18:11	7440-48-4	
Iron	21.2J	ug/L	50.0	5.6	1	04/26/22 09:43	05/04/22 18:11	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	04/26/22 09:43	05/04/22 18:11	7439-92-1	
Lithium	33.9	ug/L	10.0	5.6	1	04/26/22 09:43	05/04/22 18:11	7439-93-2	
Magnesium	32100	ug/L	50.0	27.1	1	04/26/22 09:43	05/04/22 18:11	7439-95-4	
Manganese	679	ug/L	5.0	0.24	1	04/26/22 09:43	05/04/22 18:11	7439-96-5	
Molybdenum	3.5J	ug/L	20.0	0.90	1	04/26/22 09:43	05/04/22 18:11	7439-98-7	
Potassium	5720	ug/L	500	87.6	1	04/26/22 09:43	05/04/22 18:11	7440-09-7	
Sodium	4480	ug/L	500	73.2	1	04/26/22 09:43	05/04/22 18:11	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.23J	ug/L	1.0	0.12	1	04/25/22 14:00	04/29/22 19:50	7440-36-0	
Arsenic	0.59J	ug/L	1.0	0.14	1	04/25/22 14:00	04/29/22 19:50	7440-38-2	
Cadmium	0.057J	ug/L	0.50	0.053	1	04/25/22 14:00	04/29/22 19:50	7440-43-9	
Chromium	0.35J	ug/L	1.0	0.31	1	04/25/22 14:00	04/29/22 19:50	7440-47-3	
Selenium	2.7	ug/L	1.0	0.18	1	04/25/22 14:00	04/29/22 19:50	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/25/22 14:00	04/29/22 19:50	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	05/10/22 15:57	05/11/22 13:49	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	412	mg/L	20.0	4.6	1		04/25/22 15:49		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	529	mg/L	10.0	10.0	1		04/25/22 16:10		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.7	mg/L	1.0	0.53	1		05/05/22 00:16	16887-00-6	B
Fluoride	0.42	mg/L	0.20	0.12	1		05/05/22 00:16	16984-48-8	
Sulfate	40.2	mg/L	5.0	2.8	5		05/05/22 00:30	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-SCPD-FB-1 **Lab ID: 60396735012** Collected: 04/19/22 10:10 Received: 04/20/22 04:25 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	<0.51	ug/L	5.0	0.51	1	04/26/22 09:43	05/04/22 18:13	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	04/26/22 09:43	05/04/22 18:13	7440-41-7	
Boron	5.6J	ug/L	100	4.2	1	04/26/22 09:43	05/04/22 18:13	7440-42-8	
Calcium	50.7J	ug/L	200	33.7	1	04/26/22 09:43	05/04/22 18:13	7440-70-2	
Cobalt	<0.82	ug/L	5.0	0.82	1	04/26/22 09:43	05/04/22 18:13	7440-48-4	
Iron	<5.6	ug/L	50.0	5.6	1	04/26/22 09:43	05/04/22 18:13	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	04/26/22 09:43	05/04/22 18:13	7439-92-1	
Lithium	<5.6	ug/L	10.0	5.6	1	04/26/22 09:43	05/04/22 18:13	7439-93-2	
Magnesium	<27.1	ug/L	50.0	27.1	1	04/26/22 09:43	05/04/22 18:13	7439-95-4	
Manganese	0.28J	ug/L	5.0	0.24	1	04/26/22 09:43	05/04/22 18:13	7439-96-5	
Molybdenum	<0.90	ug/L	20.0	0.90	1	04/26/22 09:43	05/04/22 18:13	7439-98-7	
Potassium	<87.6	ug/L	500	87.6	1	04/26/22 09:43	05/04/22 18:13	7440-09-7	
Sodium	<73.2	ug/L	500	73.2	1	04/26/22 09:43	05/04/22 18:13	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	04/25/22 14:00	04/29/22 19:57	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	04/25/22 14:00	04/29/22 19:57	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	04/25/22 14:00	04/29/22 19:57	7440-43-9	
Chromium	0.34J	ug/L	1.0	0.31	1	04/25/22 14:00	04/29/22 19:57	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	04/25/22 14:00	04/29/22 19:57	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	04/25/22 14:00	04/29/22 19:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	05/10/22 15:57	05/11/22 13:51	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	<4.6	mg/L	20.0	4.6	1		04/25/22 15:55		
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		04/25/22 16:10		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	0.62J	mg/L	1.0	0.53	1		05/05/22 00:44	16887-00-6	B
Fluoride	<0.12	mg/L	0.20	0.12	1		05/05/22 00:44	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		05/05/22 00:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 785875 Analysis Method: EPA 7470
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

METHOD BLANK: 3133113 Matrix: Water
 Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.064	0.20	0.064	05/11/22 12:18	

LABORATORY CONTROL SAMPLE: 3133114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133115 3133116

Parameter	Units	3133115		3133116		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60396735010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.064	5	5	4.8	4.8	96	97	75-125	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.

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 783264 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

METHOD BLANK: 3123357 Matrix: Water
 Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.51	5.0	0.51	05/05/22 15:37	
Beryllium	ug/L	<0.26	1.0	0.26	05/05/22 15:37	
Boron	ug/L	<4.2	100	4.2	05/05/22 15:37	
Calcium	ug/L	<33.7	200	33.7	05/05/22 15:37	
Cobalt	ug/L	<0.82	5.0	0.82	05/05/22 15:37	
Iron	ug/L	<5.6	50.0	5.6	05/05/22 15:37	
Lead	ug/L	<8.6	10.0	8.6	05/05/22 15:37	
Lithium	ug/L	<5.6	10.0	5.6	05/05/22 15:37	
Magnesium	ug/L	<27.1	50.0	27.1	05/05/22 15:37	
Manganese	ug/L	<0.24	5.0	0.24	05/05/22 15:37	
Molybdenum	ug/L	<0.90	20.0	0.90	05/05/22 15:37	
Potassium	ug/L	<87.6	500	87.6	05/05/22 15:37	
Sodium	ug/L	<73.2	500	73.2	05/05/22 15:37	

LABORATORY CONTROL SAMPLE: 3123358

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1020	102	85-115	
Beryllium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	978	98	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	989	99	85-115	
Iron	ug/L	10000	10100	101	85-115	
Lead	ug/L	1000	1010	101	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Magnesium	ug/L	10000	9950	99	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9750	97	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3123359 3123360

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60396735010	Result	Conc.	Conc.								
Barium	ug/L	238	1000	1000	1250	1220	102	99	70-130	2	20		
Beryllium	ug/L	<0.26	1000	1000	1030	1010	103	101	70-130	2	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3123359 3123360											
Parameter	Units	60396735010		MS	MSD	MS	MSD	MS	MSD	% Rec	Max
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD
Boron	ug/L	113	1000	1000	1090	1050	97	94	70-130	3	20
Calcium	ug/L	158000	10000	10000	169000	165000	112	75	70-130	2	20
Cobalt	ug/L	2.8J	1000	1000	969	946	97	94	70-130	2	20
Iron	ug/L	41.4J	10000	10000	10100	9840	101	98	70-130	3	20
Lead	ug/L	<8.6	1000	1000	1000	977	100	98	70-130	2	20
Lithium	ug/L	38.7	1000	1000	1080	1050	105	101	70-130	3	20
Magnesium	ug/L	31400	10000	10000	41300	40500	100	92	70-130	2	20
Manganese	ug/L	751	1000	1000	1750	1720	100	97	70-130	2	20
Molybdenum	ug/L	4.4J	1000	1000	1030	1010	102	100	70-130	2	20
Potassium	ug/L	10200	10000	10000	20700	20000	105	99	70-130	3	20
Sodium	ug/L	5540	10000	10000	16100	15600	105	101	70-130	3	20

MATRIX SPIKE SAMPLE: 3123361							
Parameter	Units	60398376005		MS	MS	% Rec	Qualifiers
		Result	Spike	Result	% Rec	Limits	
Barium	ug/L	326	1000	1330	100	70-130	
Beryllium	ug/L	<0.26	1000	1020	102	70-130	
Boron	ug/L	7110	1000	7750	63	70-130	M1
Calcium	ug/L	176000	10000	177000	8	70-130	M1
Cobalt	ug/L	<0.82	1000	964	96	70-130	
Iron	ug/L	21600	10000	30400	87	70-130	
Lead	ug/L	<8.6	1000	1000	100	70-130	
Lithium	ug/L	18.5	1000	1060	104	70-130	
Magnesium	ug/L	56200	10000	64000	78	70-130	
Manganese	ug/L	603	1000	1580	98	70-130	
Molybdenum	ug/L	34.3	1000	1070	103	70-130	
Potassium	ug/L	5080	10000	14900	99	70-130	
Sodium	ug/L	44200	10000	52300	81	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3123418 3123419											
Parameter	Units	60398376001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD
Barium	ug/L	675	1000	1000	1610	1660	94	99	70-130	3	20
Beryllium	ug/L	<0.26	1000	1000	994	1020	99	102	70-130	2	20
Boron	ug/L	1010	1000	1000	1870	1950	86	94	70-130	4	20
Calcium	ug/L	246000	10000	10000	241000	251000	-45	50	70-130	4	20 M1
Cobalt	ug/L	<0.82	1000	1000	930	948	93	95	70-130	2	20
Iron	ug/L	54900	10000	10000	61600	63800	67	89	70-130	4	20 M1
Lead	ug/L	<8.6	1000	1000	962	992	96	99	70-130	3	20
Lithium	ug/L	20.7	1000	1000	1030	1070	101	105	70-130	3	20
Magnesium	ug/L	67200	10000	10000	72700	75300	55	81	70-130	4	20 M1
Manganese	ug/L	1670	1000	1000	2540	2610	87	94	70-130	3	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3123418 3123419												
Parameter	Units	60398376001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Molybdenum	ug/L	<0.90	1000	1000	993	1010	99	101	70-130	2	20	
Potassium	ug/L	8440	10000	10000	17800	18500	94	101	70-130	4	20	
Sodium	ug/L	23400	10000	10000	32100	33200	86	98	70-130	3	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 783073

Analysis Method: EPA 200.8

QC Batch Method: EPA 200.8

Analysis Description: 200.8 MET

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

METHOD BLANK: 3122676

Matrix: Water

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	04/29/22 19:23	
Arsenic	ug/L	<0.14	1.0	0.14	04/29/22 19:23	
Cadmium	ug/L	<0.053	0.50	0.053	04/29/22 19:23	
Chromium	ug/L	<0.31	1.0	0.31	04/29/22 19:23	
Selenium	ug/L	<0.18	1.0	0.18	04/29/22 19:23	
Thallium	ug/L	<0.15	1.0	0.15	04/29/22 19:23	

LABORATORY CONTROL SAMPLE: 3122677

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.1	103	85-115	
Arsenic	ug/L	40	43.0	107	85-115	
Cadmium	ug/L	40	42.9	107	85-115	
Chromium	ug/L	40	42.7	107	85-115	
Selenium	ug/L	40	43.3	108	85-115	
Thallium	ug/L	40	39.4	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122678 3122679

Parameter	Units	60396735010		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Antimony	ug/L	0.19J	40	40	40.1	38.9	100	97	70-130	3	20		
Arsenic	ug/L	0.61J	40	40	43.2	42.4	107	105	70-130	2	20		
Cadmium	ug/L	0.084J	40	40	39.5	38.4	99	96	70-130	3	20		
Chromium	ug/L	<0.31	40	40	41.3	40.6	102	101	70-130	2	20		
Selenium	ug/L	2.6	40	40	43.4	42.5	102	100	70-130	2	20		
Thallium	ug/L	<0.15	40	40	38.2	37.5	95	94	70-130	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122680 3122681

Parameter	Units	60398376001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Antimony	ug/L	<0.12	40	40	39.0	39.5	98	99	70-130	1	20		
Arsenic	ug/L	5.3	40	40	45.8	46.7	101	103	70-130	2	20		
Cadmium	ug/L	<0.053	40	40	37.5	37.8	94	95	70-130	1	20		
Chromium	ug/L	0.47J	40	40	40.7	41.6	101	103	70-130	2	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122680 3122681													
Parameter	Units	60398376001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Selenium	ug/L	<0.18	40	40	38.8	39.2	97	98	70-130	1	20		
Thallium	ug/L	<0.15	40	40	38.1	38.4	95	96	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 783000	Analysis Method: SM 2320B
QC Batch Method: SM 2320B	Analysis Description: 2320B Alkalinity
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735008, 60396735009

METHOD BLANK: 3122470 Matrix: Water

Associated Lab Samples: 60396735008, 60396735009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	04/25/22 18:04	

LABORATORY CONTROL SAMPLE: 3122471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	480	96	90-110	

SAMPLE DUPLICATE: 3122472

Parameter	Units	60398376001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	916	909	1	10	

SAMPLE DUPLICATE: 3122473

Parameter	Units	60398377007 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	242	217	11	10	D6

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch:	783002	Analysis Method:	SM 2320B
QC Batch Method:	SM 2320B	Analysis Description:	2320B Alkalinity
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735010, 60396735011, 60396735012

METHOD BLANK: 3122478 Matrix: Water

Associated Lab Samples: 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	04/25/22 15:25	

LABORATORY CONTROL SAMPLE: 3122479

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

SAMPLE DUPLICATE: 3122480

Parameter	Units	60396735010 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	473	470	1	10	

SAMPLE DUPLICATE: 3122481

Parameter	Units	60398358002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	418	422	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch:	783189	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

METHOD BLANK: 3123049 Matrix: Water
Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/25/22 16:08	

LABORATORY CONTROL SAMPLE: 3123050

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

SAMPLE DUPLICATE: 3123051

Parameter	Units	60398333006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	875	868	1	10	

SAMPLE DUPLICATE: 3123052

Parameter	Units	60396735010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	595	592	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 783373

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60396735008

METHOD BLANK: 3123953

Matrix: Water

Associated Lab Samples: 60396735008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.61J	1.0	0.53	04/27/22 14:36	
Fluoride	mg/L	<0.12	0.20	0.12	04/27/22 14:36	
Sulfate	mg/L	<0.55	1.0	0.55	04/27/22 14:36	

METHOD BLANK: 3127055

Matrix: Water

Associated Lab Samples: 60396735008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.60J	1.0	0.53	04/28/22 09:00	
Fluoride	mg/L	<0.12	0.20	0.12	04/28/22 09:00	
Sulfate	mg/L	<0.55	1.0	0.55	04/28/22 09:00	

LABORATORY CONTROL SAMPLE: 3123954

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	101	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

LABORATORY CONTROL SAMPLE: 3127056

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	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3123955

3123956

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60397403002 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	11.9	5	5	17.0	16.8	103	98	80-120	1	15		
Fluoride	mg/L	<0.12	2.5	2.5	2.4	2.3	95	90	80-120	6	15		
Sulfate	mg/L	197	100	100	294	293	97	96	80-120	0	15		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

SAMPLE DUPLICATE: 3123957

Parameter	Units	60397403002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	11.9	11.9	0	15	
Fluoride	mg/L	<0.12	0.28		15	
Sulfate	mg/L	197	193	2	15	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 784408 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60396735009, 60396735010, 60396735011, 60396735012

METHOD BLANK: 3127658 Matrix: Water
 Associated Lab Samples: 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.62J	1.0	0.53	05/04/22 18:16	
Fluoride	mg/L	<0.12	0.20	0.12	05/04/22 18:16	
Sulfate	mg/L	<0.55	1.0	0.55	05/04/22 18:16	

METHOD BLANK: 3133456 Matrix: Water
 Associated Lab Samples: 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.60J	1.0	0.53	05/09/22 08:57	
Fluoride	mg/L	<0.12	0.20	0.12	05/09/22 08:57	
Sulfate	mg/L	<0.55	1.0	0.55	05/09/22 08:57	

METHOD BLANK: 3133598 Matrix: Water
 Associated Lab Samples: 60396735009, 60396735010, 60396735011, 60396735012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	05/10/22 09:02	
Fluoride	mg/L	<0.12	0.20	0.12	05/10/22 09:02	
Sulfate	mg/L	<0.55	1.0	0.55	05/10/22 09:02	

LABORATORY CONTROL SAMPLE: 3127659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 3133457

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	4.8	97	90-110	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

LABORATORY CONTROL SAMPLE: 3133599

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	101	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3127660 3127661

Parameter	Units	60396735010		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	6.5	5	5	11.4	11.5	98	100	80-120	1	15				
Fluoride	mg/L	0.37	2.5	2.5	2.9	3.0	102	103	80-120	1	15				
Sulfate	mg/L	44.8	50	50	93.4	92.2	97	95	80-120	1	15				

SAMPLE DUPLICATE: 3127662

Parameter	Units	60396735010 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	6.5	6.5	0	15	
Fluoride	mg/L	0.37	0.37	2	15	
Sulfate	mg/L	44.8	42.1	6	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-4 **Lab ID: 60396735008** Collected: 04/19/22 08:50 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.285 ± 0.463 (0.805) C:NA T:95%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.362 ± 0.397 (0.828) C:67% T:92%	pCi/L	05/11/22 14:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-5 **Lab ID: 60396735009** Collected: 04/19/22 09:52 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.315 (0.666) C:NA T:93%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.977 ± 0.515 (0.924) C:72% T:85%	pCi/L	05/11/22 14:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-TMW-6 **Lab ID: 60396735010** Collected: 04/19/22 10:43 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.245 ± 0.289 (0.455) C:NA T:95%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.778 ± 0.461 (0.851) C:74% T:87%	pCi/L	05/11/22 14:37	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-SCPD-DUP-1 **Lab ID: 60396735011** Collected: 04/19/22 08:00 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.249 (0.558) C:NA T:93%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.13 ± 0.518 (0.873) C:70% T:88%	pCi/L	05/11/22 14:37	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-FB-1 Lab ID: 60396735012 Collected: 04/19/22 10:10 Received: 04/20/22 04:25 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.0809 ± 0.224 (0.530) C:NA T:96%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	-0.0112 ± 0.350 (0.816) C:68% T:98%	pCi/L	05/11/22 14:37	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-SCPD-MS-1 **Lab ID: 60396735013** Collected: 04/19/22 10:43 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	72.02 %REC ± NA (NA) C:NA T:NA%	pCi/L	05/15/22 15:09	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	75.00 %REC ± NA (NA) C:NA T:NA	pCi/L	05/11/22 14:38	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Sample: S-SCPD-MSD-1 **Lab ID: 60396735014** Collected: 04/19/22 10:43 Received: 04/20/22 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	91.80 %REC 24.15 RPD ± NA (NA) C:NA T:NA%	pCi/L	05/15/22 13:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	101.33 %REC 29.86 RPD ± NA (NA) C:NA T:NA	pCi/L	05/11/22 14:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 501333

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012, 60396735013, 60396735014

METHOD BLANK: 2426548

Matrix: Water

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012, 60396735013, 60396735014

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0777 ± 0.241 (0.548) C:NA T:94%	pCi/L	05/15/22 13:01	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

QC Batch: 501335

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012, 60396735013, 60396735014

METHOD BLANK: 2426550

Matrix: Water

Associated Lab Samples: 60396735008, 60396735009, 60396735010, 60396735011, 60396735012, 60396735013, 60396735014

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.762 ± 0.433 (0.786) C:70% T:90%	pCi/L	05/11/22 14:36	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60398419

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60396735008	S-TMW-4	EPA 200.7	783264	EPA 200.7	783395
60396735009	S-TMW-5	EPA 200.7	783264	EPA 200.7	783395
60396735010	S-TMW-6	EPA 200.7	783264	EPA 200.7	783395
60396735011	S-SCPD-DUP-1	EPA 200.7	783264	EPA 200.7	783395
60396735012	S-SCPD-FB-1	EPA 200.7	783264	EPA 200.7	783395
60396735008	S-TMW-4	EPA 200.8	783073	EPA 200.8	783208
60396735009	S-TMW-5	EPA 200.8	783073	EPA 200.8	783208
60396735010	S-TMW-6	EPA 200.8	783073	EPA 200.8	783208
60396735011	S-SCPD-DUP-1	EPA 200.8	783073	EPA 200.8	783208
60396735012	S-SCPD-FB-1	EPA 200.8	783073	EPA 200.8	783208
60396735008	S-TMW-4	EPA 7470	785875	EPA 7470	786087
60396735009	S-TMW-5	EPA 7470	785875	EPA 7470	786087
60396735010	S-TMW-6	EPA 7470	785875	EPA 7470	786087
60396735011	S-SCPD-DUP-1	EPA 7470	785875	EPA 7470	786087
60396735012	S-SCPD-FB-1	EPA 7470	785875	EPA 7470	786087
60396735008	S-TMW-4	EPA 903.1	501333		
60396735009	S-TMW-5	EPA 903.1	501333		
60396735010	S-TMW-6	EPA 903.1	501333		
60396735011	S-SCPD-DUP-1	EPA 903.1	501333		
60396735012	S-SCPD-FB-1	EPA 903.1	501333		
60396735013	S-SCPD-MS-1	EPA 903.1	501333		
60396735014	S-SCPD-MSD-1	EPA 903.1	501333		
60396735008	S-TMW-4	EPA 904.0	501335		
60396735009	S-TMW-5	EPA 904.0	501335		
60396735010	S-TMW-6	EPA 904.0	501335		
60396735011	S-SCPD-DUP-1	EPA 904.0	501335		
60396735012	S-SCPD-FB-1	EPA 904.0	501335		
60396735013	S-SCPD-MS-1	EPA 904.0	501335		
60396735014	S-SCPD-MSD-1	EPA 904.0	501335		
60396735008	S-TMW-4	SM 2320B	783000		
60396735009	S-TMW-5	SM 2320B	783000		
60396735010	S-TMW-6	SM 2320B	783002		
60396735011	S-SCPD-DUP-1	SM 2320B	783002		
60396735012	S-SCPD-FB-1	SM 2320B	783002		
60396735008	S-TMW-4	SM 2540C	783189		
60396735009	S-TMW-5	SM 2540C	783189		
60396735010	S-TMW-6	SM 2540C	783189		
60396735011	S-SCPD-DUP-1	SM 2540C	783189		
60396735012	S-SCPD-FB-1	SM 2540C	783189		
60396735008	S-TMW-4	EPA 300.0	783373		
60396735009	S-TMW-5	EPA 300.0	784408		
60396735010	S-TMW-6	EPA 300.0	784408		
60396735011	S-SCPD-DUP-1	EPA 300.0	784408		
60396735012	S-SCPD-FB-1	EPA 300.0	784408		

REPORT OF LABORATORY ANALYSIS

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WO#: 60396735



DC#_Title: ENV-FRM-LENE-0009_Sample Con



Revision: 2

Effective Date: 01/12/2022

Client Name: Goldner

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: T301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.3/10.4 Corr. Factor -1.0 Corrected 2.3/10.4

Date and initials of person examining contents:

PV 4/22/22

Temperature should be above freezing to 6°C

Chain of Custody present: Yes No N/A

Chain of Custody relinquished: Yes No N/A

Samples arrived within holding time: Yes No N/A

Short Hold Time analyses (<72hr): Yes No N/A

Rush Turn Around Time requested: Yes No N/A

Sufficient volume: Yes No N/A

Correct containers used: Yes No N/A

Pace containers used: Yes No N/A

Containers intact: Yes No N/A

Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? Yes No N/A

Filtered volume received for dissolved tests? Yes No N/A

Sample labels match COC: Date / time / ID / analyses Yes No N/A

Samples contain multiple phases? Matrix: WT Yes No N/A

Containers requiring pH preservation in compliance? Yes No N/A
(HNO₃, H₂SO₄, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)
(Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: 55192

List sample IDs, volumes, lot #'s of preservative and the date/time added.

Cyanide water sample checks:

Lead acetate strip turns dark? (Record only) Yes No

Potassium iodide test strip turns blue/purple? (Preserve) Yes No

Trip Blank present: Yes No N/A

Headspace in VOA vials (>6mm): Yes No N/A

Samples from USDA Regulated Area: State: Yes No N/A

Additional labels attached to 5035A / TX1005 vials in the field? Yes No N/A

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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** Report To: **Jeffrey Ingram** Invoice Information:
Section B Required Project Information: Report To: **Eric Schneider, Ryan Feldman, Brendan Talbert** Attention:
Company: **Golder Associates USA, Inc.**
Address: **701 Emerson Road, Suite 250**
Creve Coeur, Missouri, 63141
Purchase Order No.: **COC #12**
Project Name: **Ameren Sioux Energy Center SCPD** Project Manager: **Jamie Church**
Project Number: **153140604.0003B** Pace Profile #: **9285**
State: **MO**

ITEM #	Section D Required Client Information	Valid Matrix Codes	Matrix Code	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
				COMPOSITE START	COMPOSITE END/GRAB					DATE	TIME	Y	N	U	↓	↑	↓	↑	↓	↑	↓			↑	↓
1		DRINKING WATER WATER WASTE WATER PRODUCT SOLIDS OIL	S-UG-2																					60396735	
2			S-TMW-4	4/19/12	9:50		4	HCl		X	X	X	X	X	X	X	X								
3			S-TMW-5		9:52			HNO ₃																	
4			S-TMW-6		10:43			NaOH																	
5			S-SCPD-DUP-1					Na ₂ S ₂ O ₃																	
6			S-SCPD-FB-1		10:10			HCl																	
7			S-SCPD-MS-1		10:43			HNO ₃																	
8			S-SCPD-MSD-1		10:13			HCl																	
9			S-BMW-1S					NaOH																	
10			S-BMW-3S					HNO ₃																	
11								Na ₂ S ₂ O ₃																	
12								Methanol																	
								Other																	

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	<i>Eric Schneider</i>	4/19/12	12:40	<i>Angela McManus</i>	4/19	1 PM	
**App IV Metals - EPA 200.7; Ba, Be, Co, Pb, Li, Mo, EPA 200.8; Sb, As, Cd, Cr, Se, Tl	<i>Angela McManus</i>	4/19	1 PM	<i>Angela McManus</i>	4/20	04:25	Temp in °C: 2-3 Received on Ice (Y/N): Y Custody Sealed (Y/N): Y Samples Intact (Y/N): Y

Section C Regulatory Agency: NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

SAMPLER NAME AND SIGNATURE: *Eric Schneider*
PRINT Name of SAMPLER: *Eric Schneider*
SIGNATURE of SAMPLER: *[Signature]*
DATE Signed (MM/DD/YY): *04/19/12*

*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

MEMORANDUM

DATE June 21, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL ann.muehlfarth@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #2 - DATA PACKAGE 60398419

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 6/21/2022

Laboratory: Pace Analytical

SDG #: 60398419

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste _____

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>4/19/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>EMS/</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>_____</u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>_____</u>

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>_____</u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-4
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

Comments/Notes:

Sulfate analyzed at a dilution in several samples. No qualification necessary.

Blanks:

3123953/3127055: Chloride (0.61J/0.60J). Associated with sample -008. Result >RL but <10x blank, qualified as estimate.

3127658/3133456: Chloride (0.62J/0.60J). Associated with samples 60396735009 through 60396735012. Results >RL but <10x blank, qualified as estimate. Results >RL and 10x blank no qualified. Results <RL reported at RL and qualified as estimate.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

S-SCPD-FB-1 @ S-TMW-5: Boron (5.6J), calcium (50.7J), manganese (0.28J), chromium (0.34J), chloride (0.62J),
Results >RL and 10x blank or ND not qualified. Results >RL but <10x blank qualified as estimates.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-4: DUP RPD exceeds limit (20%) for boron (21.4%), molybdenum (25%); cadmium, chromium,
and radium-228. detected in duplicate, ND in parent sample.

Sample Duplicate 3122473: RPD exceeds limit (11%) for alkalinity (11%). Performed on unrelated sample, no qualification necessary.

MS/MSD:

3123418/3123419: MS/MSD % recovery low for calcium; MS % recovery low for iron and magnesium. MS/MSD performed on
unrelated sample, no qualification necessary.

3123361: MS % recovery low for boron an calcium. MS performed on unrelated sample, no qualification necessary.

June 22, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60399270

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on May 03, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,



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

Enclosures

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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60399270001	S-TMW-4	Water	05/02/22 13:15	05/03/22 06:24
60399270002	S-TMW-5	Water	05/02/22 14:00	05/03/22 06:24
60399270003	S-TMW-6	Water	05/02/22 14:50	05/03/22 06:24
60399270004	S-SCPD-DUP-1	Water	05/02/22 08:00	05/03/22 06:24
60399270005	S-SCPD-FB-1	Water	05/02/22 13:20	05/03/22 06:24
60399270006	S-SCPD-MS-1	Water	05/02/22 14:50	05/03/22 06:24
60399270007	S-SCPD-MSD-1	Water	05/02/22 14:50	05/03/22 06:24

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60399270001	S-TMW-4	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JLH	1	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60399270002	S-TMW-5	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JLH	1	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60399270003	S-TMW-6	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JLH	1	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60399270004	S-SCPD-DUP-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JLH	1	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60399270005	S-SCPD-FB-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JLH	1	PASI-K
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Sample: S-TMW-4 **Lab ID: 60399270001** Collected: 05/02/22 13:15 Received: 05/03/22 06:24 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	210	ug/L	5.0	0.51	1	05/09/22 15:25	05/10/22 17:08	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/09/22 15:25	05/11/22 12:07	7440-41-7	
Boron	96.8J	ug/L	100	4.2	1	05/09/22 15:25	05/10/22 17:08	7440-42-8	
Calcium	136000	ug/L	200	33.7	1	05/09/22 15:25	05/10/22 17:08	7440-70-2	M1
Cobalt	2.1J	ug/L	5.0	0.82	1	05/09/22 15:25	05/10/22 17:08	7440-48-4	B
Iron	19.4J	ug/L	50.0	5.6	1	05/09/22 15:25	05/10/22 17:08	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/09/22 15:25	05/10/22 17:08	7439-92-1	
Lithium	34.5	ug/L	10.0	5.6	1	05/09/22 15:25	05/10/22 17:08	7439-93-2	
Magnesium	32800	ug/L	50.0	27.1	1	05/09/22 15:25	05/10/22 17:08	7439-95-4	
Manganese	513	ug/L	5.0	0.24	1	05/09/22 15:25	05/10/22 17:08	7439-96-5	
Molybdenum	3.7J	ug/L	20.0	0.90	1	05/09/22 15:25	05/10/22 17:08	7439-98-7	
Potassium	6090	ug/L	500	87.6	1	05/09/22 15:25	05/10/22 17:08	7440-09-7	
Sodium	4840	ug/L	500	73.2	1	05/09/22 15:25	05/10/22 17:08	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.25J	ug/L	1.0	0.12	1	05/10/22 11:19	05/18/22 14:47	7440-36-0	
Arsenic	0.51J	ug/L	1.0	0.14	1	05/10/22 11:19	05/18/22 14:47	7440-38-2	
Cadmium	0.079J	ug/L	0.50	0.053	1	05/10/22 11:19	05/18/22 14:47	7440-43-9	B
Chromium	0.47J	ug/L	1.0	0.31	1	05/10/22 11:19	05/18/22 14:47	7440-47-3	
Selenium	3.7	ug/L	1.0	0.18	1	05/10/22 11:19	05/18/22 14:47	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/10/22 11:19	05/18/22 14:47	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	05/23/22 16:33	05/24/22 12:59	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	402	mg/L	20.0	4.6	1		05/16/22 19:51		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	547	mg/L	10.0	10.0	1		05/06/22 12:57		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.7	mg/L	1.0	0.53	1		05/17/22 17:53	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/17/22 17:53	16984-48-8	
Sulfate	38.3	mg/L	10.0	5.5	10		05/17/22 18:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Sample: S-TMW-5 **Lab ID: 60399270002** Collected: 05/02/22 14:00 Received: 05/03/22 06:24 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	185	ug/L	5.0	0.51	1	05/24/22 09:14	05/24/22 14:28	7440-39-3	
Beryllium	0.51J	ug/L	1.0	0.26	1	05/24/22 09:14	05/24/22 14:28	7440-41-7	
Boron	86.0J	ug/L	100	4.2	1	05/24/22 09:14	05/24/22 14:28	7440-42-8	
Calcium	116000	ug/L	200	33.7	1	05/24/22 09:14	05/24/22 14:28	7440-70-2	
Cobalt	1.6J	ug/L	5.0	0.82	1	05/24/22 09:14	05/24/22 14:28	7440-48-4	
Iron	132	ug/L	50.0	5.6	1	05/24/22 09:14	05/24/22 14:28	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/24/22 09:14	05/24/22 14:28	7439-92-1	
Lithium	30.8	ug/L	10.0	5.6	1	05/24/22 09:14	05/24/22 14:28	7439-93-2	
Magnesium	22600	ug/L	50.0	27.1	1	05/24/22 09:14	05/24/22 14:28	7439-95-4	
Manganese	435	ug/L	5.0	0.24	1	05/24/22 09:14	05/24/22 14:28	7439-96-5	
Molybdenum	3.2J	ug/L	20.0	0.90	1	05/24/22 09:14	05/24/22 14:28	7439-98-7	
Potassium	5070	ug/L	500	87.6	1	05/24/22 09:14	05/24/22 14:28	7440-09-7	
Sodium	3810	ug/L	500	73.2	1	05/24/22 09:14	05/24/22 14:28	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.17J	ug/L	1.0	0.12	1	05/10/22 11:19	05/18/22 14:51	7440-36-0	
Arsenic	0.66J	ug/L	1.0	0.14	1	05/10/22 11:19	05/18/22 14:51	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	05/10/22 11:19	05/18/22 14:51	7440-43-9	
Chromium	0.38J	ug/L	1.0	0.31	1	05/10/22 11:19	05/18/22 14:51	7440-47-3	
Selenium	0.54J	ug/L	1.0	0.18	1	05/10/22 11:19	05/18/22 14:51	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/10/22 11:19	05/18/22 14:51	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	05/23/22 16:33	05/24/22 13:01	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	385	mg/L	20.0	4.6	1		05/16/22 20:10		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	481	mg/L	10.0	10.0	1		05/06/22 12:57		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.0	mg/L	1.0	0.53	1		05/17/22 18:22	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/17/22 18:22	16984-48-8	
Sulfate	41.1	mg/L	5.0	2.8	5		05/17/22 18:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Sample: S-TMW-6 **Lab ID: 60399270003** Collected: 05/02/22 14:50 Received: 05/03/22 06:24 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	264	ug/L	5.0	0.51	1	05/09/22 15:25	05/10/22 17:12	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/09/22 15:25	05/11/22 12:11	7440-41-7	
Boron	119	ug/L	100	4.2	1	05/09/22 15:25	05/10/22 17:12	7440-42-8	
Calcium	161000	ug/L	200	33.7	1	05/09/22 15:25	05/10/22 17:12	7440-70-2	M1
Cobalt	3.9J	ug/L	5.0	0.82	1	05/09/22 15:25	05/10/22 17:12	7440-48-4	B
Iron	50.7	ug/L	50.0	5.6	1	05/09/22 15:25	05/10/22 17:12	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/09/22 15:25	05/10/22 17:12	7439-92-1	
Lithium	41.0	ug/L	10.0	5.6	1	05/09/22 15:25	05/10/22 17:12	7439-93-2	
Magnesium	32100	ug/L	50.0	27.1	1	05/09/22 15:25	05/10/22 17:12	7439-95-4	
Manganese	729	ug/L	5.0	0.24	1	05/09/22 15:25	05/10/22 17:12	7439-96-5	
Molybdenum	5.2J	ug/L	20.0	0.90	1	05/09/22 15:25	05/10/22 17:12	7439-98-7	
Potassium	17900	ug/L	500	87.6	1	05/09/22 15:25	05/10/22 17:12	7440-09-7	
Sodium	6010	ug/L	500	73.2	1	05/09/22 15:25	05/10/22 17:12	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.22J	ug/L	1.0	0.12	1	05/10/22 11:19	05/18/22 12:53	7440-36-0	
Arsenic	0.60J	ug/L	1.0	0.14	1	05/10/22 11:19	05/18/22 12:53	7440-38-2	
Cadmium	0.096J	ug/L	0.50	0.053	1	05/10/22 11:19	05/18/22 12:53	7440-43-9	B
Chromium	0.54J	ug/L	1.0	0.31	1	05/10/22 11:19	05/18/22 12:53	7440-47-3	
Selenium	3.2	ug/L	1.0	0.18	1	05/10/22 11:19	05/18/22 12:53	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/10/22 11:19	05/18/22 12:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	05/23/22 16:33	05/24/22 13:03	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	466	mg/L	20.0	4.6	1		05/16/22 20:17		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	615	mg/L	10.0	10.0	1		05/06/22 12:57		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	5.2	mg/L	1.0	0.53	1		05/17/22 18:50	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/17/22 18:50	16984-48-8	
Sulfate	41.4	mg/L	10.0	5.5	10		05/17/22 20:15	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Sample: S-SCPD-DUP-1 **Lab ID: 60399270004** Collected: 05/02/22 08:00 Received: 05/03/22 06:24 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	209	ug/L	5.0	0.51	1	05/09/22 15:25	05/10/22 17:22	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/09/22 15:25	05/11/22 12:21	7440-41-7	
Boron	94.3J	ug/L	100	4.2	1	05/09/22 15:25	05/10/22 17:22	7440-42-8	
Calcium	131000	ug/L	200	33.7	1	05/09/22 15:25	05/10/22 17:22	7440-70-2	
Cobalt	2.9J	ug/L	5.0	0.82	1	05/09/22 15:25	05/10/22 17:22	7440-48-4	B
Iron	136	ug/L	50.0	5.6	1	05/09/22 15:25	05/10/22 17:22	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/09/22 15:25	05/10/22 17:22	7439-92-1	
Lithium	36.6	ug/L	10.0	5.6	1	05/09/22 15:25	05/10/22 17:22	7439-93-2	
Magnesium	24900	ug/L	50.0	27.1	1	05/09/22 15:25	05/10/22 17:22	7439-95-4	
Manganese	487	ug/L	5.0	0.24	1	05/09/22 15:25	05/10/22 17:22	7439-96-5	
Molybdenum	2.6J	ug/L	20.0	0.90	1	05/09/22 15:25	05/10/22 17:22	7439-98-7	
Potassium	5680	ug/L	500	87.6	1	05/09/22 15:25	05/10/22 17:22	7440-09-7	
Sodium	4560	ug/L	500	73.2	1	05/09/22 15:25	05/10/22 17:22	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.17J	ug/L	1.0	0.12	1	05/10/22 11:19	05/18/22 14:56	7440-36-0	
Arsenic	0.63J	ug/L	1.0	0.14	1	05/10/22 11:19	05/18/22 14:56	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	05/10/22 11:19	05/18/22 14:56	7440-43-9	
Chromium	1.8	ug/L	1.0	0.31	1	05/10/22 11:19	05/18/22 14:56	7440-47-3	
Selenium	0.53J	ug/L	1.0	0.18	1	05/10/22 11:19	05/18/22 14:56	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/10/22 11:19	05/18/22 14:56	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	05/23/22 16:33	05/24/22 13:10	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	393	mg/L	20.0	4.6	1		05/16/22 20:32		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	473	mg/L	10.0	10.0	1		05/06/22 12:57		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.0	mg/L	1.0	0.53	1		05/17/22 21:11	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/17/22 21:11	16984-48-8	
Sulfate	38.5	mg/L	5.0	2.8	5		05/17/22 21:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Sample: S-SCPD-FB-1 **Lab ID: 60399270005** Collected: 05/02/22 13:20 Received: 05/03/22 06:24 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	<0.51	ug/L	5.0	0.51	1	05/09/22 15:25	05/10/22 17:24	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/09/22 15:25	05/11/22 12:23	7440-41-7	
Boron	<4.2	ug/L	100	4.2	1	05/09/22 15:25	05/10/22 17:24	7440-42-8	
Calcium	<33.7	ug/L	200	33.7	1	05/09/22 15:25	05/10/22 17:24	7440-70-2	
Cobalt	1.1J	ug/L	5.0	0.82	1	05/09/22 15:25	05/10/22 17:24	7440-48-4	B
Iron	<5.6	ug/L	50.0	5.6	1	05/09/22 15:25	05/10/22 17:24	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/09/22 15:25	05/10/22 17:24	7439-92-1	
Lithium	<5.6	ug/L	10.0	5.6	1	05/09/22 15:25	05/10/22 17:24	7439-93-2	
Magnesium	<27.1	ug/L	50.0	27.1	1	05/09/22 15:25	05/10/22 17:24	7439-95-4	
Manganese	0.27J	ug/L	5.0	0.24	1	05/09/22 15:25	05/10/22 17:24	7439-96-5	
Molybdenum	<0.90	ug/L	20.0	0.90	1	05/09/22 15:25	05/10/22 17:24	7439-98-7	
Potassium	<87.6	ug/L	500	87.6	1	05/09/22 15:25	05/10/22 17:24	7440-09-7	
Sodium	89.8J	ug/L	500	73.2	1	05/09/22 15:25	05/10/22 17:24	7440-23-5	B
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	05/10/22 11:19	05/18/22 15:01	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	05/10/22 11:19	05/18/22 15:01	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	05/10/22 11:19	05/18/22 15:01	7440-43-9	
Chromium	0.76J	ug/L	1.0	0.31	1	05/10/22 11:19	05/18/22 15:01	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	05/10/22 11:19	05/18/22 15:01	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/10/22 11:19	05/18/22 15:01	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.12	ug/L	0.20	0.12	1	05/23/22 16:33	05/24/22 13:12	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	5.9J	mg/L	20.0	4.6	1		05/16/22 20:39		B
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		05/06/22 12:57		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<0.53	mg/L	1.0	0.53	1		05/17/22 21:39	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/17/22 21:39	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		05/17/22 21:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

QC Batch: 788306

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3142354

Matrix: Water

Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.12	0.20	0.12	05/24/22 12:24	

LABORATORY CONTROL SAMPLE: 3142355

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3142356 3142357

Parameter	Units	3142356		3142357		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60399270003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.12	5	5	4.4	4.5	88	89	75-125	2	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

QC Batch: 785758 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270001, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3132743 Matrix: Water

Associated Lab Samples: 60399270001, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.51	5.0	0.51	05/10/22 16:42	
Beryllium	ug/L	0.30J	1.0	0.26	05/11/22 11:34	
Boron	ug/L	<4.2	100	4.2	05/10/22 16:42	
Calcium	ug/L	<33.7	200	33.7	05/10/22 16:42	
Cobalt	ug/L	1.2J	5.0	0.82	05/10/22 16:42	
Iron	ug/L	<5.6	50.0	5.6	05/10/22 16:42	
Lead	ug/L	<8.6	10.0	8.6	05/10/22 16:42	
Lithium	ug/L	<5.6	10.0	5.6	05/10/22 16:42	
Magnesium	ug/L	<27.1	50.0	27.1	05/10/22 16:42	
Manganese	ug/L	<0.24	5.0	0.24	05/10/22 16:42	
Molybdenum	ug/L	<0.90	20.0	0.90	05/10/22 16:42	
Potassium	ug/L	<87.6	500	87.6	05/10/22 16:42	
Sodium	ug/L	84.9J	500	73.2	05/10/22 16:42	

LABORATORY CONTROL SAMPLE: 3132744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1070	107	85-115	
Beryllium	ug/L	1000	1060	106	85-115	
Boron	ug/L	1000	995	100	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	1030	103	85-115	
Iron	ug/L	10000	10500	105	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	1050	105	85-115	
Magnesium	ug/L	10000	9670	97	85-115	
Manganese	ug/L	1000	1050	105	85-115	
Molybdenum	ug/L	1000	1060	106	85-115	
Potassium	ug/L	10000	10200	102	85-115	
Sodium	ug/L	10000	10500	105	85-115	

MATRIX SPIKE SAMPLE: 3132745

Parameter	Units	60399270001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	210	1000	1230	102	70-130	
Beryllium	ug/L	<0.26	1000	1050	105	70-130	
Boron	ug/L	96.8J	1000	1070	97	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

MATRIX SPIKE SAMPLE: 3132745		60399270001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Calcium	ug/L	136000	10000	143000	66	70-130	M1
Cobalt	ug/L	2.1J	1000	989	99	70-130	
Iron	ug/L	19.4J	10000	10100	101	70-130	
Lead	ug/L	<8.6	1000	1020	102	70-130	
Lithium	ug/L	34.5	1000	1060	103	70-130	
Magnesium	ug/L	32800	10000	42100	93	70-130	
Manganese	ug/L	513	1000	1530	102	70-130	
Molybdenum	ug/L	3.7J	1000	1050	104	70-130	
Potassium	ug/L	6090	10000	16200	101	70-130	
Sodium	ug/L	4840	10000	15000	101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3132746		3132747									
Parameter	Units	60399270003	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	
Barium	ug/L	264	1000	1000	1340	1300	108	104	70-130	3	20
Beryllium	ug/L	<0.26	1000	1000	1070	1040	107	104	70-130	3	20
Boron	ug/L	119	1000	1000	1130	1110	101	99	70-130	2	20
Calcium	ug/L	161000	10000	10000	168000	162000	62	2	70-130	4	20 M1
Cobalt	ug/L	3.9J	1000	1000	1050	1010	104	100	70-130	4	20
Iron	ug/L	50.7	10000	10000	10700	10400	107	104	70-130	3	20
Lead	ug/L	<8.6	1000	1000	1060	1030	106	103	70-130	3	20
Lithium	ug/L	41.0	1000	1000	1130	1100	109	106	70-130	2	20
Magnesium	ug/L	32100	10000	10000	41400	40100	93	80	70-130	3	20
Manganese	ug/L	729	1000	1000	1800	1740	107	101	70-130	3	20
Molybdenum	ug/L	5.2J	1000	1000	1110	1070	111	106	70-130	4	20
Potassium	ug/L	17900	10000	10000	28100	27300	101	94	70-130	3	20
Sodium	ug/L	6010	10000	10000	16700	16200	107	101	70-130	3	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

QC Batch: 788433	Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7	Analysis Description: 200.7 Metals, Total
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270002

METHOD BLANK: 3142692 Matrix: Water

Associated Lab Samples: 60399270002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.51	5.0	0.51	05/24/22 14:24	
Beryllium	ug/L	<0.26	1.0	0.26	05/24/22 14:24	
Boron	ug/L	<4.2	100	4.2	05/24/22 14:24	
Calcium	ug/L	<33.7	200	33.7	05/24/22 14:24	
Cobalt	ug/L	<0.82	5.0	0.82	05/24/22 14:24	
Iron	ug/L	<5.6	50.0	5.6	05/24/22 14:24	
Lead	ug/L	<8.6	10.0	8.6	05/24/22 14:24	
Lithium	ug/L	<5.6	10.0	5.6	05/24/22 14:24	
Magnesium	ug/L	<27.1	50.0	27.1	05/24/22 14:24	
Manganese	ug/L	<0.24	5.0	0.24	05/24/22 14:24	
Molybdenum	ug/L	<0.90	20.0	0.90	05/24/22 14:24	
Potassium	ug/L	<87.6	500	87.6	05/24/22 14:24	
Sodium	ug/L	<73.2	500	73.2	05/24/22 14:24	

LABORATORY CONTROL SAMPLE: 3142693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	972	97	85-115	
Beryllium	ug/L	1000	997	100	85-115	
Boron	ug/L	1000	938	94	85-115	
Calcium	ug/L	10000	9490	95	85-115	
Cobalt	ug/L	1000	928	93	85-115	
Iron	ug/L	10000	9290	93	85-115	
Lead	ug/L	1000	942	94	85-115	
Lithium	ug/L	1000	940	94	85-115	
Magnesium	ug/L	10000	9280	93	85-115	
Manganese	ug/L	1000	955	96	85-115	
Molybdenum	ug/L	1000	942	94	85-115	
Potassium	ug/L	10000	9330	93	85-115	
Sodium	ug/L	10000	9290	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3142694 3142695

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60400936001	Result	Conc.	Conc.								
Barium	ug/L	57.3	1000	1000	1020	1000	97	95	70-130	2	20		
Beryllium	ug/L	ND	1000	1000	994	966	99	97	70-130	3	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3142694		3142695		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60400936001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Boron	ug/L	535	1000	1000	1470	1440	93	91	70-130	2	20		
Calcium	ug/L	37200	10000	10000	45100	45200	79	80	70-130	0	20		
Cobalt	ug/L	ND	1000	1000	943	915	94	92	70-130	3	20		
Iron	ug/L	4080	10000	10000	13100	13000	90	89	70-130	1	20		
Lead	ug/L	14.0	1000	1000	965	947	95	93	70-130	2	20		
Lithium	ug/L	ND	1000	1000	961	935	95	93	70-130	3	20		
Magnesium	ug/L	22800	10000	10000	31500	31300	87	84	70-130	1	20		
Manganese	ug/L	7.5	1000	1000	976	953	97	95	70-130	2	20		
Molybdenum	ug/L	ND	1000	1000	972	946	97	94	70-130	3	20		
Potassium	ug/L	6320	10000	10000	15800	15500	95	92	70-130	2	20		
Sodium	ug/L	58900	10000	10000	66000	66300	71	75	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60399270

QC Batch: 785854 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3133048 Matrix: Water
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	05/18/22 12:01	
Arsenic	ug/L	<0.14	1.0	0.14	05/18/22 12:01	
Cadmium	ug/L	0.057J	0.50	0.053	05/18/22 12:01	
Chromium	ug/L	<0.31	1.0	0.31	05/18/22 12:01	
Selenium	ug/L	<0.18	1.0	0.18	05/18/22 12:01	
Thallium	ug/L	<0.15	1.0	0.15	05/18/22 12:01	

LABORATORY CONTROL SAMPLE: 3133049

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.2	103	85-115	
Arsenic	ug/L	40	42.4	106	85-115	
Cadmium	ug/L	40	42.9	107	85-115	
Chromium	ug/L	40	41.0	103	85-115	
Selenium	ug/L	40	42.8	107	85-115	
Thallium	ug/L	40	39.0	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133050 3133051

Parameter	Units	60399270003		60399270003		60399270003		60399270003		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec						
Antimony	ug/L	0.22J	40	40	40.2	39.8	100	99	70-130	1	20		
Arsenic	ug/L	0.60J	40	40	42.0	41.5	103	102	70-130	1	20		
Cadmium	ug/L	0.096J	40	40	40.7	40.3	102	100	70-130	1	20		
Chromium	ug/L	0.54J	40	40	41.8	41.5	103	103	70-130	1	20		
Selenium	ug/L	3.2	40	40	43.2	42.1	100	97	70-130	3	20		
Thallium	ug/L	<0.15	40	40	40.8	40.2	102	100	70-130	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133052 3133053

Parameter	Units	60399743001		60399743001		60399743001		60399743001		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec						
Antimony	ug/L	ND	40	40	39.4	39.1	99	98	70-130	1	20		
Arsenic	ug/L	0.16J	40	40	42.2	41.9	105	104	70-130	1	20		
Cadmium	ug/L	0.14J	40	40	40.0	39.7	100	99	70-130	1	20		
Chromium	ug/L	0.37J	40	40	39.9	39.8	99	98	70-130	0	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133052 3133053												
Parameter	Units	60399743001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max	Qual
			Spike Conc.	Spike Conc.							RPD	
Selenium	ug/L	ND	40	40	40.2	40.1	100	100	70-130	0	20	
Thallium	ug/L	ND	40	40	40.2	40.0	100	100	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

QC Batch:	786842	Analysis Method:	SM 2320B
QC Batch Method:	SM 2320B	Analysis Description:	2320B Alkalinity
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3136762 Matrix: Water
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	5.8J	20.0	4.6	05/16/22 19:14	

LABORATORY CONTROL SAMPLE: 3136763

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	473	95	90-110	

SAMPLE DUPLICATE: 3136764

Parameter	Units	60399270003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	466	467	0	10	

SAMPLE DUPLICATE: 3136765

Parameter	Units	60399310005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	452	454	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

QC Batch:	785324	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3131197 Matrix: Water
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/06/22 12:55	

LABORATORY CONTROL SAMPLE: 3131198

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

SAMPLE DUPLICATE: 3131199

Parameter	Units	60399193001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3920	4020	3	10	

SAMPLE DUPLICATE: 3131200

Parameter	Units	60399270003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	615	594	3	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60399270

QC Batch: 787046 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

METHOD BLANK: 3137415 Matrix: Water
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	05/17/22 14:37	
Fluoride	mg/L	<0.12	0.20	0.12	05/17/22 14:37	
Sulfate	mg/L	<0.55	1.0	0.55	05/17/22 14:37	

METHOD BLANK: 3141587 Matrix: Water
Associated Lab Samples: 60399270001, 60399270002, 60399270003, 60399270004, 60399270005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	05/19/22 16:24	
Fluoride	mg/L	<0.12	0.20	0.12	05/19/22 16:24	
Sulfate	mg/L	<0.55	1.0	0.55	05/19/22 16:24	

LABORATORY CONTROL SAMPLE: 3137416

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.4	94	90-110	
Sulfate	mg/L	5	5.2	105	90-110	

LABORATORY CONTROL SAMPLE: 3141588

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	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3137420 3137421

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60399270003 Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	5.2	5	5	9.8	9.9	92	95	80-120	1	15
Fluoride	mg/L	<0.12	2.5	2.5	2.2	2.3	89	92	80-120	4	15
Sulfate	mg/L	41.4	50	50	88.6	88.2	94	94	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 SEC SCPD

Pace Project No.: 60399270

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3137423												3137424	
Parameter	Units	60399312001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual		
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD			
Chloride	mg/L	131	50	50	179	178	96	94	80-120	1	15		
Fluoride	mg/L	ND	2.5	2.5	2.9	2.9	115	118	80-120	2	15		
Sulfate	mg/L	337	250	250	553	564	86	91	80-120	2	15		

SAMPLE DUPLICATE: 3137422

Parameter	Units	60399270003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	5.2	5.2	0	15	
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	41.4	39.5	5	15	

SAMPLE DUPLICATE: 3137425

Parameter	Units	60399312001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	131	129	2	15	
Fluoride	mg/L	ND	0.46		15	
Sulfate	mg/L	337	324	4	15	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60399270

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60399270001	S-TMW-4	EPA 200.7	785758	EPA 200.7	785809
60399270002	S-TMW-5	EPA 200.7	788433	EPA 200.7	788548
60399270003	S-TMW-6	EPA 200.7	785758	EPA 200.7	785809
60399270004	S-SCPD-DUP-1	EPA 200.7	785758	EPA 200.7	785809
60399270005	S-SCPD-FB-1	EPA 200.7	785758	EPA 200.7	785809
60399270001	S-TMW-4	EPA 200.8	785854	EPA 200.8	785976
60399270002	S-TMW-5	EPA 200.8	785854	EPA 200.8	785976
60399270003	S-TMW-6	EPA 200.8	785854	EPA 200.8	785976
60399270004	S-SCPD-DUP-1	EPA 200.8	785854	EPA 200.8	785976
60399270005	S-SCPD-FB-1	EPA 200.8	785854	EPA 200.8	785976
60399270001	S-TMW-4	EPA 7470	788306	EPA 7470	788390
60399270002	S-TMW-5	EPA 7470	788306	EPA 7470	788390
60399270003	S-TMW-6	EPA 7470	788306	EPA 7470	788390
60399270004	S-SCPD-DUP-1	EPA 7470	788306	EPA 7470	788390
60399270005	S-SCPD-FB-1	EPA 7470	788306	EPA 7470	788390
60399270001	S-TMW-4	SM 2320B	786842		
60399270002	S-TMW-5	SM 2320B	786842		
60399270003	S-TMW-6	SM 2320B	786842		
60399270004	S-SCPD-DUP-1	SM 2320B	786842		
60399270005	S-SCPD-FB-1	SM 2320B	786842		
60399270001	S-TMW-4	SM 2540C	785324		
60399270002	S-TMW-5	SM 2540C	785324		
60399270003	S-TMW-6	SM 2540C	785324		
60399270004	S-SCPD-DUP-1	SM 2540C	785324		
60399270005	S-SCPD-FB-1	SM 2540C	785324		
60399270001	S-TMW-4	EPA 300.0	787046		
60399270002	S-TMW-5	EPA 300.0	787046		
60399270003	S-TMW-6	EPA 300.0	787046		
60399270004	S-SCPD-DUP-1	EPA 300.0	787046		
60399270005	S-SCPD-FB-1	EPA 300.0	787046		

REPORT OF LABORATORY ANALYSIS

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DC#_Title: ENV-FRM-LENE-0009_Sample Con

Revision: 2

Effective Date: 01/12/2022

Issued By: Lenexa

Client Name: Golder Associates

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other 2 PLC

Thermometer Used: T301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.2 Corr. Factor -1.0 Corrected 2.2

Date and initials of person examining contents: JA 5/3/22

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____



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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Jeffrey Ingram	Attention:	
Address:	701 Emerson Road, Suite 250 Creve Coeur, Missouri, 63141	Copy To:	Eric Schneider, Ryan Feldman, Brendan Talbert	Company Name:	Golder Associates USA, Inc.
Email To:	jeffrey_ingram@golder.com	Purchase Order No.:	COC #12	Address:	
Phone:	636-724-9191	Project Name:	Ameren Sioux Energy Center SCPD	Pace Quote Reference:	
Requested Due Date/TAT:	Standard	Project Number:	153140604.0003B	Pace Project Manager:	Jamie Church

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location: MO
 STATE: MO

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOL/SOLID SL OIL OL WP AR OT TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
		COMPOSITE START	COMPOSITE END/GRAB						
1	S-UG-2			G	WT				60399270
2	S-TMW-4	5/2/12	1315	G	WT	4		X	
3	S-TMW-5		1400	G	WT			X	
4	S-TMW-6		1450	G	WT			X	
5	S-SCPD-DUP-1			G	WT			X	
6	S-SCPD-FB-1			G	WT			X	
7	S-SCPD-MS-1			G	WT			X	
8	S-SCPD-MSD-1			G	WT			X	
9	S-BMW-1S			G	WT			X	S-SCPD-MS-1 + S-SCPD-MSD-1 + TMW-6
10	S-BMW-3S			G	WT			X	
11				G	WT				
12				G	WT				

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 **App IV Metals - EPA 200.7: Ba, Be, Co, Pb, Li, Mo EPA 200.8: Sb, As, Cd, Cr, Se, Tl	<i>Jeffrey Ingram</i>	5/2/12	1620	<i>Egon</i>	5/3/12	0627	2-2 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: *P. C. Schuman*
 SIGNATURE of SAMPLER: *P. C. Schuman*

DATE Signed (MM/DD/YYYY): 6/5/12 2012

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

Client: Goldier Associates

Profile # 9285

Site: Ameren Sioux Energy Center SCPD

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

Notes

Container Codes

Container Code	Glass	Plastic	Misc.
DG9B	40mL bisulfate clear vial	BP1C 1L NaOH plastic	I Wipe/Swab
DG9H	40mL HCl amber vial	BP1N 1L HNO3 plastic	SP5T 120mL Colliform Na Thiosulfate
DG9M	40mL MeOH clear vial	BP1S 1L H2SO4 plastic	ZPLC Ziploc Bag
DG9Q	40mL TSP amber vial	BP1U 1L unreserved plastic	AF Air Filter
DG9S	40mL H2SO4 amber vial	BP1Z 1L NaOH, Zn Acetate	C Air Cassettes
DG9T	40mL Na Thio amber vial	BP2C 500mL NaOH plastic	R Terracore Kit
DG9U	40mL amber unreserved	BP2N 500mL HNO3 plastic	U Summa Can
VG9H	40mL HCl clear vial	BP2S 500mL H2SO4 plastic	
VG9T	40mL Na Thio. clear vial	BP2U 500mL unreserved plastic	
VG9U	40mL unreserved clear vial	BP2Z 500mL NaOH, Zn Acetate	
BG1S	1liter H2SO4 clear glass	BP3C 250mL NaOH plastic	
BG1U	1liter unreserved glass	BP3F 250mL HNO3 plastic - field filtered	WT Water
BG3H	250mL HCL Clear glass	BP3N 250mL HNO3 plastic	SL Solid
BG3U	250mL Unpres Clear glass	BP3S 250mL unreserved plastic	NAL Non-aqueous Liquid
WGDU	16oz clear soil jar	BP3Z 250mL H2SO4 plastic	OL OIL
		BP3Z 250mL NaOH, Zn Acetate	WP Wipe
		BP4U 125mL unreserved plastic	DW Drinking Water
		BP4N 125mL HNO3 plastic	
		BP4S 125mL H2SO4 plastic	
		WPDU 16oz unreserved plastic	

Work Order Number:

60399270

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Pace Analytical - Lenexa, KS

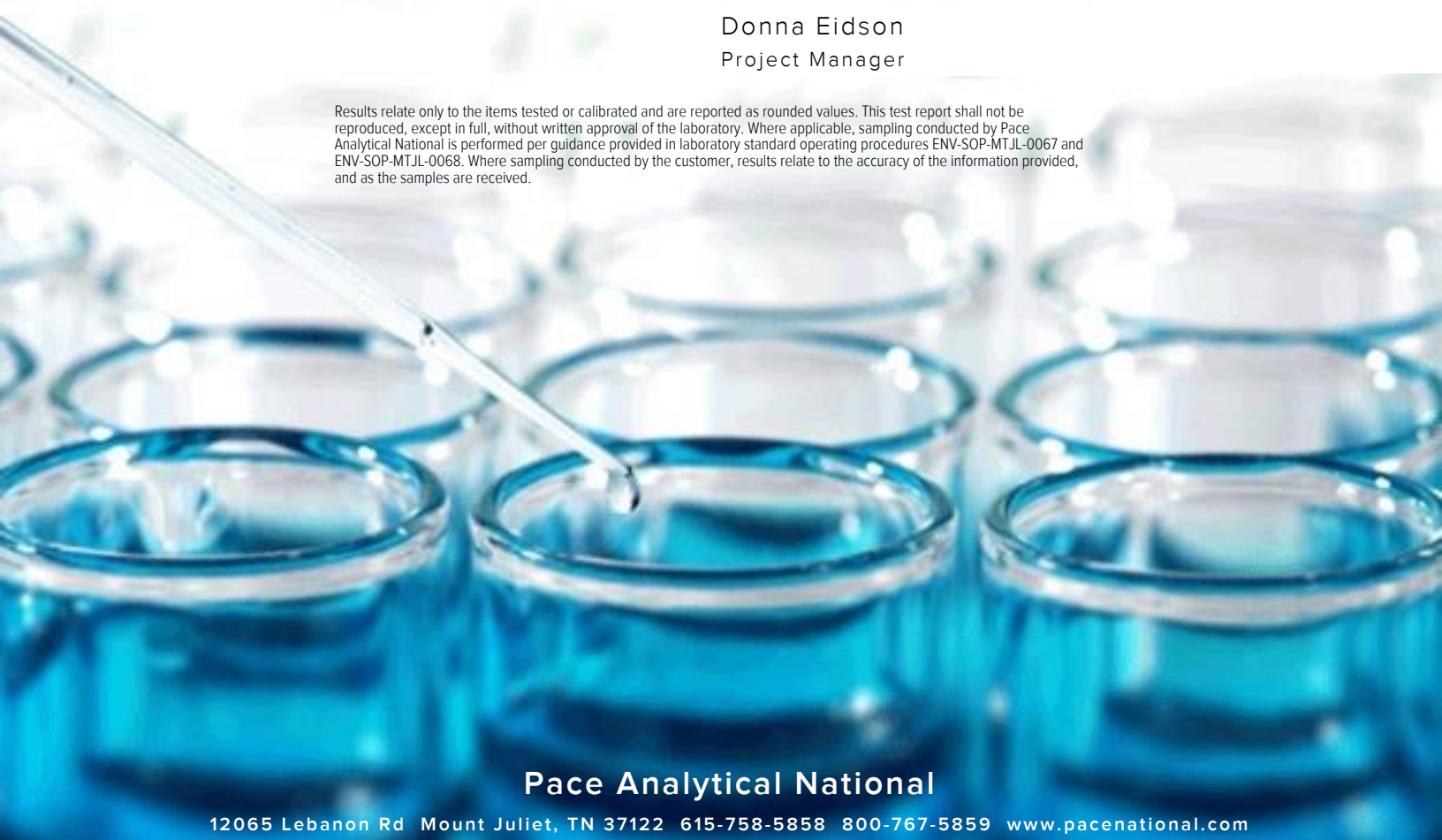
Sample Delivery Group: L1489855
Samples Received: 05/05/2022
Project Number: 60399270
Description: Ameren Sec Scpd
Site: 001
Report To: Jamie Church
9608 Loiret Boulevard
Lenexa, KS 66219

Entire Report Reviewed By:



Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

S-TMW-4 L1489855-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/02/22 13:15
05/05/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1876054	1	06/13/22 10:37	06/15/22 11:02	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1862352	1	05/30/22 10:00	06/02/22 13:43	RRE	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

S-TMW-5 L1489855-02 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/02/22 14:00
05/05/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1876054	1	06/13/22 10:37	06/15/22 11:02	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1862352	1	05/30/22 10:00	06/02/22 20:03	RRE	Mt. Juliet, TN

S-TMW-6 L1489855-03 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/02/22 14:50
05/05/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1876054	1	06/13/22 10:37	06/15/22 11:02	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1862352	1	05/30/22 10:00	06/02/22 20:03	RRE	Mt. Juliet, TN

S-SCPD-DUP-1 L1489855-04 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/02/22 08:00
05/05/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1876054	1	06/13/22 10:37	06/15/22 11:02	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1862352	1	05/30/22 10:00	06/02/22 20:03	RRE	Mt. Juliet, TN

S-SCPD-FB-1 L1489855-05 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/02/22 13:20
05/05/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1876054	1	06/13/22 10:37	06/15/22 11:02	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1862352	1	05/30/22 10:00	06/02/22 20:03	RRE	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.20		0.188	0.490	06/15/2022 11:02	WG1876054
(T) Barium	111			62.0-143	06/15/2022 11:02	WG1876054
(T) Yttrium	106			79.0-136	06/15/2022 11:02	WG1876054

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.177	J	0.171	0.212	06/02/2022 13:43	WG1862352
(T) Barium-133	114			30.0-143	06/02/2022 13:43	WG1862352

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.704		0.174	0.474	06/15/2022 11:02	WG1876054
(T) Barium	108			62.0-143	06/15/2022 11:02	WG1876054
(T) Yttrium	105			79.0-136	06/15/2022 11:02	WG1876054

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.370		0.226	0.203	06/02/2022 20:03	WG1862352
(T) Barium-133	123			30.0-143	06/02/2022 20:03	WG1862352

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.22		0.192	0.497	06/15/2022 11:02	WG1876054
(T) Barium	105			62.0-143	06/15/2022 11:02	WG1876054
(T) Yttrium	102			79.0-136	06/15/2022 11:02	WG1876054

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.312		0.218	0.221	06/02/2022 20:03	WG1862352
(T) Barium-133	115			30.0-143	06/02/2022 20:03	WG1862352

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.34		0.188	0.480	06/15/2022 11:02	WG1876054
(T) Barium	102			62.0-143	06/15/2022 11:02	WG1876054
(T) Yttrium	107			79.0-136	06/15/2022 11:02	WG1876054

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.552		0.309	0.285	06/02/2022 20:03	WG1862352
(T) Barium-133	112			30.0-143	06/02/2022 20:03	WG1862352

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.377	J	0.174	0.494	06/15/2022 11:02	WG1876054
(T) Barium	111			62.0-143	06/15/2022 11:02	WG1876054
(T) Yttrium	99.8			79.0-136	06/15/2022 11:02	WG1876054

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.360		0.244	0.238	06/02/2022 20:03	WG1862352
(T) Barium-133	121			30.0-143	06/02/2022 20:03	WG1862352

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3803711-1 06/15/22 11:02

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	-0.0867	<u>U</u>	0.118	0.355
(T) Barium	98.6		98.6	
(T) Yttrium	103		103	

Laboratory Control Sample (LCS)

(LCS) R3803711-2 06/15/22 11:02

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.15	83.0	80.0-120	
(T) Barium			112		
(T) Yttrium			106		

L1489855-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489855-03 06/15/22 11:02 • (MS) R3803711-3 06/15/22 11:02 • (MSD) R3803711-5 06/15/22 11:02

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	1.22	10.7	10.2	95.1	89.5	1	70.0-130			5.36		20
(T) Barium		105			113	112							
(T) Yttrium		102			105	108							

L1489931-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489931-06 06/15/22 11:02 • (MS) R3803711-4 06/15/22 11:02 • (MSD) R3803711-6 06/15/22 11:02

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	11.3	19.2	19.3	78.6	79.6	1	70.0-130			0.520		20
(T) Barium		105			105	110							
(T) Yttrium		107			103	102							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3799991-1 06/02/22 08:37

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-226	-0.0144	<u>U</u>	0.0223	0.0680
(T) Barium-133	84.3		84.3	

L1491809-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1491809-12 06/03/22 09:55 • (DUP) R3799991-5 06/02/22 13:43

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-226	0.0244	0.107	0.212	0.00552	0.105	0.212	1	126	0.126	<u>U</u>	20	3
(T) Barium-133	122			117	117							

Laboratory Control Sample (LCS)

(LCS) R3799991-2 06/02/22 08:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.02	4.77	94.9	80.0-120	
(T) Barium-133			97.2		

L1489855-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489855-03 06/02/22 20:03 • (MS) R3799991-3 06/02/22 08:37 • (MSD) R3799991-4 06/02/22 13:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	0.312	19.6	18.6	96.4	91.5	1	75.0-125			5.13		20
(T) Barium-133		115			114	106							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

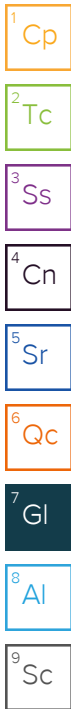
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



MEMORANDUM**DATE** June 28, 2022**Project No.** 153140604.0003**TO** Project File
Golder Associates**CC** Amanda Derhake, Jeff Ingram**FROM** Annie Muehlfarth**EMAIL** ann.muehlfarth@wsp.com**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #3 - DATA PACKAGE 60399270**

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 6/28/2022

Laboratory: Pace Analytical SDG #: 60399270
 Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions)
 Matrix: Air Soil/Sed. Water Waste
 Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>5/2/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>EMS</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
Note Deficiencies: <u></u>				

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max RPD: 5% [<15%]

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments/Notes:

Sulfate analyzed at a dilution in multiple samples. No qualification needed.

Blanks:

MB 3132743: Beryllium (0.30J), cobalt (1.2J), sodium (84.9J). Associated with samples -001, -003 through -005.

ND results not qualified. Results <RL reported at RL and qualified as ND. Results >RL and 10x blank not qualified.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB 3133048: Cadmium (0.057J). Associated with samples -001 through -005. Results <RL were reported at RL and qualified as ND. ND results not qualified.

MB 3136762: Alkalinity (5.8J). Associated with samples -001 through -005. Results >RL and 10x blank not qualified. Results <RL were reported at RL and qualified as ND.

S-SCPD-FB-1 @ S-TMW-4: Cobalt (1.1J), manganese (0.27J), sodium (89.8J), chromium (0.76J), alkalinity (5.9J), radium-228 (0.377 ± 0.174), radium-226 (0.360 ± 0.244) Results <RL were reported at RL and qualified as ND. Results >RL and 10x blank not qualified. Radium results qualified as estimates.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: Beryllium detected in parent sample and ND in duplicate. Dup RPD exceeds limit (20%) for cobalt (57.8%), molybdenum (20.7%), chromium (130.3%), radium-228 (62.2%), and radium-226 (39.5%)

Lab Sample Duplicate L1491809-12: Dup RPD for radium-226 (20%) exceeded the limit (3%). This duplicate associated with an unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-TMW-6	Cobalt	5.0	UJ	Detected in MB, RL>result
S-SCPD-FB-1	Cobalt	5.0	UJ	"
"	Sodium	500	UJ	"
"	Alkalinity	20.0	UJ	"
S-TMW-6	Cadmium	0.50	UJ	"
S-TMW-4	Cadmium	0.50	UJ	"
"	Chromium	1.0	UJ	Detected in FB, RL>result
"	Cobalt	5.0	UJ	Detected in MB/FB, RL>result
S-TMW-5	Beryllium	0.51	J	Detected in sample, ND in dup
"	Cobalt	1.6	J	Dup RPD exceeds limit
"	Molybdenum	3.2	J	"
"	Chromium	0.38	J	"
"	Radium-226	0.370 ± 0.226	J	"
"	Radium-228	0.704 ± 0.174	J	"
S-SCPD-DUP-1	Beryllium	0.26	UJ	Detected in sample, ND in dup
"	Cobalt	5.0	UJ	Detected in MB, RL>result; Dup RPD exceeds limit
"	Molybdenum	2.6	J	Dup RPD exceeds limit
"	Chromium	1.8	J	"
"	Radium-226	0.552 ± 0.285	J	"
"	Radium-228	1.34 ± 0.188	J	"
S-TMW-4	Radium-226	1.20 ± 0.188	J	Detected in FB
"	Radium-228	0.177 ± 0.171	J	"

Signature: Ann Muehlforth

Date: 6/28/2022

June 30, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60400441

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60400441001	S-TMW-4	Water	05/16/22 16:33	05/17/22 03:57
60400441002	S-TMW-5	Water	05/16/22 15:23	05/17/22 03:57
60400441003	S-TMW-6	Water	05/16/22 13:59	05/17/22 03:57
60400441004	S-SCPD-DUP-1	Water	05/16/22 00:00	05/17/22 03:57
60400441005	S-SCPD-FB-1	Water	05/16/22 15:38	05/17/22 03:57
60400441006	S-SCPD-MS-1	Water	05/16/22 13:59	05/17/22 03:57
60400441007	S-SCPD-MSD-1	Water	05/16/22 13:59	05/17/22 03:57

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60400441001	S-TMW-4	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	MRV	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60400441002	S-TMW-5	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	MRV	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60400441003	S-TMW-6	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	MRV	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60400441004	S-SCPD-DUP-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	MRV	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60400441005	S-SCPD-FB-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	MRV	6	PASI-K
		EPA 7470	MRV	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SB2	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60400441006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60400441007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-4 **Lab ID: 60400441001** Collected: 05/16/22 16:33 Received: 05/17/22 03:57 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	209	ug/L	5.0	0.51	1	05/18/22 11:51	05/20/22 20:10	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/18/22 11:51	05/20/22 20:10	7440-41-7	
Boron	89.9J	ug/L	100	4.2	1	05/18/22 11:51	05/20/22 20:10	7440-42-8	
Calcium	134000	ug/L	200	33.7	1	05/18/22 11:51	05/20/22 20:10	7440-70-2	
Cobalt	1.6J	ug/L	5.0	0.82	1	05/18/22 11:51	05/20/22 20:10	7440-48-4	
Iron	62.6	ug/L	50.0	5.6	1	05/18/22 11:51	05/20/22 20:10	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/18/22 11:51	05/20/22 20:10	7439-92-1	
Lithium	32.1	ug/L	10.0	5.6	1	05/18/22 11:51	05/20/22 20:10	7439-93-2	
Magnesium	32100	ug/L	50.0	27.1	1	05/18/22 11:51	05/20/22 20:10	7439-95-4	
Manganese	666	ug/L	5.0	0.24	1	05/18/22 11:51	05/20/22 20:10	7439-96-5	
Molybdenum	4.8J	ug/L	20.0	0.90	1	05/18/22 11:51	05/20/22 20:10	7439-98-7	
Potassium	5750	ug/L	500	87.6	1	05/18/22 11:51	05/20/22 20:10	7440-09-7	
Sodium	4240	ug/L	500	73.2	1	05/18/22 11:51	05/20/22 20:10	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.21J	ug/L	1.0	0.12	1	05/18/22 11:51	05/27/22 11:57	7440-36-0	
Arsenic	0.56J	ug/L	1.0	0.14	1	05/18/22 11:51	05/27/22 11:57	7440-38-2	
Cadmium	0.061J	ug/L	0.50	0.053	1	05/18/22 11:51	05/27/22 11:57	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	05/18/22 11:51	05/27/22 11:57	7440-47-3	
Selenium	2.1	ug/L	1.0	0.18	1	05/18/22 11:51	05/27/22 11:57	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/18/22 11:51	05/27/22 11:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/07/22 08:56	06/08/22 12:15	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	423	mg/L	20.0	4.6	1		05/24/22 22:01		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	484	mg/L	10.0	10.0	1		05/20/22 11:36		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.9	mg/L	1.0	0.53	1		05/28/22 16:21	16887-00-6	
Fluoride	0.40	mg/L	0.20	0.12	1		05/28/22 16:21	16984-48-8	
Sulfate	41.7	mg/L	10.0	5.5	10		05/28/22 16:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-5 **Lab ID: 60400441002** Collected: 05/16/22 15:23 Received: 05/17/22 03:57 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	192	ug/L	5.0	0.51	1	05/18/22 11:51	05/20/22 20:12	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/18/22 11:51	05/20/22 20:12	7440-41-7	
Boron	92.4J	ug/L	100	4.2	1	05/18/22 11:51	05/20/22 20:12	7440-42-8	
Calcium	122000	ug/L	200	33.7	1	05/18/22 11:51	05/20/22 20:12	7440-70-2	
Cobalt	1.7J	ug/L	5.0	0.82	1	05/18/22 11:51	05/20/22 20:12	7440-48-4	
Iron	329	ug/L	50.0	5.6	1	05/18/22 11:51	05/20/22 20:12	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/18/22 11:51	05/20/22 20:12	7439-92-1	
Lithium	33.5	ug/L	10.0	5.6	1	05/18/22 11:51	05/20/22 20:12	7439-93-2	
Magnesium	24200	ug/L	50.0	27.1	1	05/18/22 11:51	05/20/22 20:12	7439-95-4	
Manganese	450	ug/L	5.0	0.24	1	05/18/22 11:51	05/20/22 20:12	7439-96-5	
Molybdenum	2.4J	ug/L	20.0	0.90	1	05/18/22 11:51	05/20/22 20:12	7439-98-7	
Potassium	5330	ug/L	500	87.6	1	05/18/22 11:51	05/20/22 20:12	7440-09-7	
Sodium	4170	ug/L	500	73.2	1	05/18/22 11:51	05/20/22 20:12	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.15J	ug/L	1.0	0.12	1	05/18/22 11:51	05/27/22 12:00	7440-36-0	
Arsenic	0.68J	ug/L	1.0	0.14	1	05/18/22 11:51	05/27/22 12:00	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	05/18/22 11:51	05/27/22 12:00	7440-43-9	
Chromium	0.35J	ug/L	1.0	0.31	1	05/18/22 11:51	05/27/22 12:00	7440-47-3	
Selenium	0.26J	ug/L	1.0	0.18	1	05/18/22 11:51	05/27/22 12:00	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/18/22 11:51	05/27/22 12:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/07/22 08:56	06/08/22 12:17	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	373	mg/L	20.0	4.6	1		05/24/22 22:08		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	453	mg/L	10.0	10.0	1		05/20/22 11:36		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.2	mg/L	1.0	0.53	1		05/28/22 17:17	16887-00-6	
Fluoride	0.40	mg/L	0.20	0.12	1		05/28/22 17:17	16984-48-8	
Sulfate	42.0	mg/L	5.0	2.8	5		05/28/22 17:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-6 **Lab ID: 60400441003** Collected: 05/16/22 13:59 Received: 05/17/22 03:57 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	225	ug/L	5.0	0.51	1	05/18/22 11:51	05/20/22 20:14	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/18/22 11:51	05/20/22 20:14	7440-41-7	
Boron	95.8J	ug/L	100	4.2	1	05/18/22 11:51	05/20/22 20:14	7440-42-8	
Calcium	159000	ug/L	200	33.7	1	05/18/22 11:51	05/20/22 20:14	7440-70-2	
Cobalt	3.0J	ug/L	5.0	0.82	1	05/18/22 11:51	05/20/22 20:14	7440-48-4	
Iron	63.8	ug/L	50.0	5.6	1	05/18/22 11:51	05/20/22 20:14	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/18/22 11:51	05/20/22 20:14	7439-92-1	
Lithium	38.0	ug/L	10.0	5.6	1	05/18/22 11:51	05/20/22 20:14	7439-93-2	
Magnesium	32700	ug/L	50.0	27.1	1	05/18/22 11:51	05/20/22 20:14	7439-95-4	
Manganese	775	ug/L	5.0	0.24	1	05/18/22 11:51	05/20/22 20:14	7439-96-5	
Molybdenum	2.3J	ug/L	20.0	0.90	1	05/18/22 11:51	05/20/22 20:14	7439-98-7	
Potassium	5920	ug/L	500	87.6	1	05/18/22 11:51	05/20/22 20:14	7440-09-7	
Sodium	4720	ug/L	500	73.2	1	05/18/22 11:51	05/20/22 20:14	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.18J	ug/L	1.0	0.12	1	05/18/22 11:51	05/27/22 12:03	7440-36-0	
Arsenic	0.56J	ug/L	1.0	0.14	1	05/18/22 11:51	05/27/22 12:03	7440-38-2	
Cadmium	0.071J	ug/L	0.50	0.053	1	05/18/22 11:51	05/27/22 12:03	7440-43-9	
Chromium	0.43J	ug/L	1.0	0.31	1	05/18/22 11:51	05/27/22 12:03	7440-47-3	
Selenium	0.43J	ug/L	1.0	0.18	1	05/18/22 11:51	05/27/22 12:03	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/18/22 11:51	05/27/22 12:03	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/07/22 08:56	06/08/22 12:19	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	489	mg/L	20.0	4.6	1		05/24/22 22:14		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	598	mg/L	10.0	10.0	1		05/20/22 11:36		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	9.6	mg/L	1.0	0.53	1		05/28/22 17:44	16887-00-6	M1
Fluoride	0.34	mg/L	0.20	0.12	1		05/28/22 17:44	16984-48-8	
Sulfate	45.0	mg/L	10.0	5.5	10		06/01/22 18:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-SCPD-DUP-1 **Lab ID: 60400441004** Collected: 05/16/22 00:00 Received: 05/17/22 03:57 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	211	ug/L	5.0	0.51	1	05/18/22 11:51	05/20/22 20:24	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/18/22 11:51	05/20/22 20:24	7440-41-7	
Boron	89.3J	ug/L	100	4.2	1	05/18/22 11:51	05/20/22 20:24	7440-42-8	
Calcium	137000	ug/L	200	33.7	1	05/18/22 11:51	05/20/22 20:24	7440-70-2	
Cobalt	1.6J	ug/L	5.0	0.82	1	05/18/22 11:51	05/20/22 20:24	7440-48-4	
Iron	77.9	ug/L	50.0	5.6	1	05/18/22 11:51	05/20/22 20:24	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/18/22 11:51	05/20/22 20:24	7439-92-1	
Lithium	31.8	ug/L	10.0	5.6	1	05/18/22 11:51	05/20/22 20:24	7439-93-2	
Magnesium	32800	ug/L	50.0	27.1	1	05/18/22 11:51	05/20/22 20:24	7439-95-4	
Manganese	659	ug/L	5.0	0.24	1	05/18/22 11:51	05/20/22 20:24	7439-96-5	
Molybdenum	4.8J	ug/L	20.0	0.90	1	05/18/22 11:51	05/20/22 20:24	7439-98-7	
Potassium	5880	ug/L	500	87.6	1	05/18/22 11:51	05/20/22 20:24	7440-09-7	
Sodium	4320	ug/L	500	73.2	1	05/18/22 11:51	05/20/22 20:24	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.22J	ug/L	1.0	0.12	1	05/18/22 11:51	05/27/22 12:15	7440-36-0	
Arsenic	0.61J	ug/L	1.0	0.14	1	05/18/22 11:51	05/27/22 12:15	7440-38-2	
Cadmium	0.058J	ug/L	0.50	0.053	1	05/18/22 11:51	05/27/22 12:15	7440-43-9	
Chromium	0.36J	ug/L	1.0	0.31	1	05/18/22 11:51	05/27/22 12:15	7440-47-3	
Selenium	2.0	ug/L	1.0	0.18	1	05/18/22 11:51	05/27/22 12:15	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/18/22 11:51	05/27/22 12:15	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/07/22 08:56	06/08/22 12:26	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	426	mg/L	20.0	4.6	1		05/24/22 22:28		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	514	mg/L	10.0	10.0	1		05/20/22 11:37		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.9	mg/L	1.0	0.53	1		05/28/22 18:40	16887-00-6	
Fluoride	0.39	mg/L	0.20	0.12	1		05/28/22 18:40	16984-48-8	
Sulfate	40.3	mg/L	5.0	2.8	5		05/28/22 18:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-SCPD-FB-1 **Lab ID: 60400441005** Collected: 05/16/22 15:38 Received: 05/17/22 03:57 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	<0.51	ug/L	5.0	0.51	1	05/18/22 11:51	05/20/22 20:26	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	05/18/22 11:51	05/20/22 20:26	7440-41-7	
Boron	<4.2	ug/L	100	4.2	1	05/18/22 11:51	05/20/22 20:26	7440-42-8	
Calcium	58.8J	ug/L	200	33.7	1	05/18/22 11:51	05/20/22 20:26	7440-70-2	B
Cobalt	<0.82	ug/L	5.0	0.82	1	05/18/22 11:51	05/20/22 20:26	7440-48-4	
Iron	<5.6	ug/L	50.0	5.6	1	05/18/22 11:51	05/20/22 20:26	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	05/18/22 11:51	05/20/22 20:26	7439-92-1	
Lithium	<5.6	ug/L	10.0	5.6	1	05/18/22 11:51	05/20/22 20:26	7439-93-2	
Magnesium	<27.1	ug/L	50.0	27.1	1	05/18/22 11:51	05/20/22 20:26	7439-95-4	
Manganese	<0.24	ug/L	5.0	0.24	1	05/18/22 11:51	05/20/22 20:26	7439-96-5	
Molybdenum	<0.90	ug/L	20.0	0.90	1	05/18/22 11:51	05/20/22 20:26	7439-98-7	
Potassium	<87.6	ug/L	500	87.6	1	05/18/22 11:51	05/20/22 20:26	7440-09-7	
Sodium	<73.2	ug/L	500	73.2	1	05/18/22 11:51	05/20/22 20:26	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	05/18/22 11:51	05/27/22 12:18	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	05/18/22 11:51	05/27/22 12:18	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	05/18/22 11:51	05/27/22 12:18	7440-43-9	
Chromium	<0.31	ug/L	1.0	0.31	1	05/18/22 11:51	05/27/22 12:18	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	05/18/22 11:51	05/27/22 12:18	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	05/18/22 11:51	05/27/22 12:18	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/07/22 08:56	06/08/22 12:28	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	12.2J	mg/L	20.0	4.6	1		05/24/22 22:34		B
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	<5.0	mg/L	5.0	5.0	1		05/20/22 11:37		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<0.53	mg/L	1.0	0.53	1		05/28/22 19:07	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		05/28/22 19:07	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		05/28/22 19:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch:	790864	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3151644 Matrix: Water

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.064	0.20	0.064	06/08/22 12:10	

LABORATORY CONTROL SAMPLE: 3151645

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: 3151646 3151647

Parameter	Units	60400441003		3151647		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	ug/L	<0.064	5	5	4.9	4.9	98	98	75-125	0	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60400441

QC Batch: 787337 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3138627 Matrix: Water
Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.51	5.0	0.51	05/20/22 20:03	
Beryllium	ug/L	<0.26	1.0	0.26	05/20/22 20:03	
Boron	ug/L	<4.2	100	4.2	05/20/22 20:03	
Calcium	ug/L	45.5J	200	33.7	05/20/22 20:03	
Cobalt	ug/L	<0.82	5.0	0.82	05/20/22 20:03	
Iron	ug/L	<5.6	50.0	5.6	05/20/22 20:03	
Lead	ug/L	<8.6	10.0	8.6	05/20/22 20:03	
Lithium	ug/L	<5.6	10.0	5.6	05/20/22 20:03	
Magnesium	ug/L	<27.1	50.0	27.1	05/20/22 20:03	
Manganese	ug/L	0.51J	5.0	0.24	05/20/22 20:03	
Molybdenum	ug/L	<0.90	20.0	0.90	05/20/22 20:03	
Potassium	ug/L	<87.6	500	87.6	05/20/22 20:03	
Sodium	ug/L	<73.2	500	73.2	05/20/22 20:03	

LABORATORY CONTROL SAMPLE: 3138628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1010	101	85-115	
Beryllium	ug/L	1000	1030	103	85-115	
Boron	ug/L	1000	964	96	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	986	99	85-115	
Iron	ug/L	10000	9910	99	85-115	
Lead	ug/L	1000	996	100	85-115	
Lithium	ug/L	1000	1000	100	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	989	99	85-115	
Molybdenum	ug/L	1000	984	98	85-115	
Potassium	ug/L	10000	9830	98	85-115	
Sodium	ug/L	10000	9880	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3138629 3138630

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60400441003	Result	Spike Conc.	Spike Conc.								
Barium	ug/L	225	1000	1000	1250	1220	102	99	70-130	2	20		
Beryllium	ug/L	<0.26	1000	1000	1030	1040	103	104	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Parameter	Units	3138629		3138630		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60400441003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Boron	ug/L	95.8J	1000	1000	1080	1050	98	95	70-130	3	20		
Calcium	ug/L	159000	10000	10000	170000	167000	113	82	70-130	2	20		
Cobalt	ug/L	3.0J	1000	1000	995	992	99	99	70-130	0	20		
Iron	ug/L	63.8	10000	10000	10100	9980	101	99	70-130	2	20		
Lead	ug/L	<8.6	1000	1000	1040	1020	104	102	70-130	2	20		
Lithium	ug/L	38.0	1000	1000	1080	1060	105	102	70-130	2	20		
Magnesium	ug/L	32700	10000	10000	43200	42300	104	95	70-130	2	20		
Manganese	ug/L	775	1000	1000	1780	1780	101	100	70-130	0	20		
Molybdenum	ug/L	2.3J	1000	1000	1010	1010	101	101	70-130	0	20		
Potassium	ug/L	5920	10000	10000	16400	16000	105	100	70-130	3	20		
Sodium	ug/L	4720	10000	10000	15000	14700	102	100	70-130	2	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch:	787338	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3138631 Matrix: Water
Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	05/27/22 11:53	
Arsenic	ug/L	<0.14	1.0	0.14	05/27/22 11:53	
Cadmium	ug/L	<0.053	0.50	0.053	05/27/22 11:53	
Chromium	ug/L	<0.31	1.0	0.31	05/27/22 11:53	
Selenium	ug/L	<0.18	1.0	0.18	05/27/22 11:53	
Thallium	ug/L	<0.15	1.0	0.15	05/27/22 11:53	

LABORATORY CONTROL SAMPLE: 3138632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	38.1	95	85-115	
Cadmium	ug/L	40	39.6	99	85-115	
Chromium	ug/L	40	38.5	96	85-115	
Selenium	ug/L	40	41.3	103	85-115	
Thallium	ug/L	40	37.2	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3138633 3138634

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Spike Conc.	Result	Spike Conc.	Result						
Antimony	ug/L	0.18J	40	40	38.0	37.2	95	93	70-130	2	20
Arsenic	ug/L	0.56J	40	40	37.4	36.4	92	90	70-130	3	20
Cadmium	ug/L	0.071J	40	40	37.2	36.1	93	90	70-130	3	20
Chromium	ug/L	0.43J	40	40	36.8	36.1	91	89	70-130	2	20
Selenium	ug/L	0.43J	40	40	40.2	39.2	100	97	70-130	3	20
Thallium	ug/L	<0.15	40	40	39.2	37.7	98	94	70-130	4	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch: 788509

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3142992

Matrix: Water

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	5.5J	20.0	4.6	05/24/22 19:47	

LABORATORY CONTROL SAMPLE: 3142993

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

SAMPLE DUPLICATE: 3142994

Parameter	Units	60400436001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	306	304	1	10	

SAMPLE DUPLICATE: 3142995

Parameter	Units	60400441003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	489	485	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch:	787925	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3140595 Matrix: Water

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/20/22 11:34	

LABORATORY CONTROL SAMPLE: 3140596

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

SAMPLE DUPLICATE: 3140597

Parameter	Units	60397346004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	607	662	9	10	

SAMPLE DUPLICATE: 3140598

Parameter	Units	60400441003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	598	657	9	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch: 789404 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

METHOD BLANK: 3146076 Matrix: Water
 Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	05/28/22 12:40	
Fluoride	mg/L	<0.12	0.20	0.12	05/28/22 12:40	
Sulfate	mg/L	<0.55	1.0	0.55	05/28/22 12:40	

METHOD BLANK: 3148813 Matrix: Water
 Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/01/22 14:30	
Fluoride	mg/L	<0.12	0.20	0.12	06/01/22 14:30	
Sulfate	mg/L	<0.55	1.0	0.55	06/01/22 14:30	

LABORATORY CONTROL SAMPLE: 3146077

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	101	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

LABORATORY CONTROL SAMPLE: 3148814

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	99	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3146079 3146078

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60400889005 Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	58.6	50	50	104	99.8	90	82	80-120	4	15
Fluoride	mg/L	0.66	2.5	2.5	2.8	2.8	87	86	80-120	1	15
Sulfate	mg/L	12.3	5	5	17.6	17.5	106	104	80-120	1	15

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3146081												3146082	
Parameter	Units	60400441003	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits				
Chloride	mg/L	9.6	5	5	13.5	13.7	79	82	80-120	1	15	M1	
Fluoride	mg/L	0.34	2.5	2.5	2.3	2.3	80	80	80-120	1	15		
Sulfate	mg/L	45.0	50	50	92.1	90.2	94	90	80-120	2	15		

SAMPLE DUPLICATE: 3146080

Parameter	Units	60400889005	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	58.6	58.2	1	15	
Fluoride	mg/L	0.66	0.66	0	15	
Sulfate	mg/L	12.3	12.3	0	15	

SAMPLE DUPLICATE: 3146083

Parameter	Units	60400441003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	9.6	9.5	0	15	
Fluoride	mg/L	0.34	0.36	5	15	
Sulfate	mg/L	45.0	44.8	0	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-4 **Lab ID: 60400441001** Collected: 05/16/22 16:33 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.148 ± 0.291 (0.698) C:NA T:84%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.965 ± 0.490 (0.829) C:69% T:84%	pCi/L	06/23/22 16:33	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-5 **Lab ID: 60400441002** Collected: 05/16/22 15:23 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	26.1 ± 3.82 (0.639) C:NA T:84%	pCi/L	06/29/22 13:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	1.30 ± 0.552 (0.871) C:71% T:84%	pCi/L	06/23/22 16:33	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-TMW-6 **Lab ID: 60400441003** Collected: 05/16/22 13:59 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.370 ± 0.403 (0.634) C:NA T:87%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.542 ± 0.795 (1.71) C:58% T:87%	pCi/L	06/23/22 19:44	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-SCPD-DUP-1 **Lab ID: 60400441004** Collected: 05/16/22 00:00 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.430 ± 0.337 (0.395) C:NA T:88%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.438 ± 0.583 (1.24) C:67% T:88%	pCi/L	06/23/22 19:44	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-SCPD-FB-1 **Lab ID: 60400441005** Collected: 05/16/22 15:38 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.256 (0.520) C:NA T:86%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.403 ± 0.603 (1.30) C:66% T:86%	pCi/L	06/23/22 19:44	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60400441006 Collected: 05/16/22 13:59 Received: 05/17/22 03:57 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	73.14 %REC ± NA (NA) C:NA T:NA%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	90.23 %REC ± NA (NA) C:NA T:NA	pCi/L	06/23/22 19:44	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Sample: S-SCPD-MSD-1 **Lab ID: 60400441007** Collected: 05/16/22 13:59 Received: 05/17/22 03:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	93.39 %REC 24.33 RPD ± NA (NA) C:NA T:NA%	pCi/L	06/29/22 13:20	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	87.28 %REC 3.32RPD ± NA (NA) C:NA T:NA	pCi/L	06/23/22 19:45	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch: 510575

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005, 60400441006, 60400441007

METHOD BLANK: 2474643

Matrix: Water

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005, 60400441006, 60400441007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.423 ± 0.384 (0.772) C:76% T:85%	pCi/L	06/23/22 16:35	

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 - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

QC Batch: 510574

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005, 60400441006, 60400441007

METHOD BLANK: 2474641

Matrix: Water

Associated Lab Samples: 60400441001, 60400441002, 60400441003, 60400441004, 60400441005, 60400441006, 60400441007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.253 (0.452) C:NA T:85%	pCi/L	06/29/22 12:58	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60400441

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.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

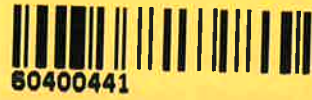
Project: AMEREN SEC SCPD

Pace Project No.: 60400441

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60400441001	S-TMW-4	EPA 200.7	787337	EPA 200.7	787563
60400441002	S-TMW-5	EPA 200.7	787337	EPA 200.7	787563
60400441003	S-TMW-6	EPA 200.7	787337	EPA 200.7	787563
60400441004	S-SCPD-DUP-1	EPA 200.7	787337	EPA 200.7	787563
60400441005	S-SCPD-FB-1	EPA 200.7	787337	EPA 200.7	787563
60400441001	S-TMW-4	EPA 200.8	787338	EPA 200.8	787564
60400441002	S-TMW-5	EPA 200.8	787338	EPA 200.8	787564
60400441003	S-TMW-6	EPA 200.8	787338	EPA 200.8	787564
60400441004	S-SCPD-DUP-1	EPA 200.8	787338	EPA 200.8	787564
60400441005	S-SCPD-FB-1	EPA 200.8	787338	EPA 200.8	787564
60400441001	S-TMW-4	EPA 7470	790864	EPA 7470	791048
60400441002	S-TMW-5	EPA 7470	790864	EPA 7470	791048
60400441003	S-TMW-6	EPA 7470	790864	EPA 7470	791048
60400441004	S-SCPD-DUP-1	EPA 7470	790864	EPA 7470	791048
60400441005	S-SCPD-FB-1	EPA 7470	790864	EPA 7470	791048
60400441001	S-TMW-4	EPA 903.1	510574		
60400441002	S-TMW-5	EPA 903.1	510574		
60400441003	S-TMW-6	EPA 903.1	510574		
60400441004	S-SCPD-DUP-1	EPA 903.1	510574		
60400441005	S-SCPD-FB-1	EPA 903.1	510574		
60400441006	S-SCPD-MS-1	EPA 903.1	510574		
60400441007	S-SCPD-MSD-1	EPA 903.1	510574		
60400441001	S-TMW-4	EPA 904.0	510575		
60400441002	S-TMW-5	EPA 904.0	510575		
60400441003	S-TMW-6	EPA 904.0	510575		
60400441004	S-SCPD-DUP-1	EPA 904.0	510575		
60400441005	S-SCPD-FB-1	EPA 904.0	510575		
60400441006	S-SCPD-MS-1	EPA 904.0	510575		
60400441007	S-SCPD-MSD-1	EPA 904.0	510575		
60400441001	S-TMW-4	SM 2320B	788509		
60400441002	S-TMW-5	SM 2320B	788509		
60400441003	S-TMW-6	SM 2320B	788509		
60400441004	S-SCPD-DUP-1	SM 2320B	788509		
60400441005	S-SCPD-FB-1	SM 2320B	788509		
60400441001	S-TMW-4	SM 2540C	787925		
60400441002	S-TMW-5	SM 2540C	787925		
60400441003	S-TMW-6	SM 2540C	787925		
60400441004	S-SCPD-DUP-1	SM 2540C	787925		
60400441005	S-SCPD-FB-1	SM 2540C	787925		
60400441001	S-TMW-4	EPA 300.0	789404		
60400441002	S-TMW-5	EPA 300.0	789404		
60400441003	S-TMW-6	EPA 300.0	789404		
60400441004	S-SCPD-DUP-1	EPA 300.0	789404		
60400441005	S-SCPD-FB-1	EPA 300.0	789404		

REPORT OF LABORATORY ANALYSIS

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

Client Name: holder

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: T301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.4/18.9 Corr. Factor -1.0 Corrected 1.4/17.9

Date and initials of person examining contents:
pv 5/17/22

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: <u>55192</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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) <input type="checkbox"/> Yes <input type="checkbox"/> No Potassium iodide test strip turns blue/purple? (Preserve) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

holder

Client:

Profile #

9285-1

Site:

2517

Notes: *SE-RAD SE-38 RAD and SE-38 RAD on BPA.*

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

Container Codes

Glass		Plastic												Misc.																					
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1C	1L NaOH plastic	BP1	Wipe/Swab																												
DG9H	40mL HCl amber vial	WGDU	4oz clear soil jar	BP1N	1L HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate																												
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar	BP1S	1L H2SO4 plastic	ZPLC	Ziploc Bag																												
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide	BP1U	1L unpreserved plastic	AF	Air Filter																												
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate	C	Air Cassettes																												
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2C	500mL NaOH, Zn Acetate	R	Terracore Kit																												
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic	U	Summa Can																												
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic																														
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic																														
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate																														
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3C	250mL NaOH plastic																														
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered	WT	Water																												
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic	SL	Solid																												
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass	BP3U	250mL unpreserved plastic	NAL	Non-aqueous Liquid																												
WG9U	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic	OL	OIL																												
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate	WP	Wipe																												
				BP4U	125mL unpreserved plastic	DW	Drinking Water																												
				BP4N	125mL HNO3 plastic																														
				BP4S	125mL H2SO4 plastic																														
				WPDU	16oz unpreserved plastic																														

Work Order Number:

100400441

MEMORANDUM

DATE July 5, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL ann.muehlfarth@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #4 - DATA PACKAGE 60400441

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 7/5/2022

Laboratory: Pace Analytical

SDG #: 60400441

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste _____

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>5/16/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-4
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max RPD: 9% [<10%]

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

Comments/Notes:

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

Blanks:

3138627: Calcium (45.5J), manganese (0.51J). Associated with samples -001 through -005. ND results or results >RL and 10x blank not qualified. Results < RL reported at RL and qualified as an estimate.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

3142992: Alkalinity (5.5J). Associated with samples -001 through -005. Results >10x blank not qualified. Result <RL reported at RL and qualified as an estimate.

S-SCPD-FB-1 @ S-TMW-5: Calcium (58.8J), alkalinity (12.2J). Associated results >RL and 10x blank, no qualification necessary.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-4: Dup RPD exceeds limit (20%) for iron (21.8%); Chromium, radium-226 detected in duplicate, ND in sample; Radium-228 detected in parent sample, ND in duplicate.

MS/MSD:

3146081/3146082: MS % recovery low for chloride. Associated with sample -003. Only 1 QC indicator outside of control limits, no qualification necessary.

July 15, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60402313

Dear Jeffrey Ingram:

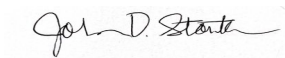
Enclosed are the analytical results for sample(s) received by the laboratory on June 08, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise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

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

- Pace Analytical Services - Kansas City
- Pace Analytical Services - Greensburg

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

Sincerely,



John Stanton for
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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60402313001	S-TMW-4	Water	06/06/22 11:30	06/08/22 05:26
60402313002	S-TMW-5	Water	06/06/22 13:02	06/08/22 05:26
60402313003	S-TMW-6	Water	06/06/22 14:10	06/08/22 05:26
60402313004	S-SCPD-DUP-1	Water	06/06/22 00:00	06/08/22 05:26
60402313005	S-SCPD-FB-1	Water	06/06/22 14:30	06/08/22 05:26
60402313006	S-SCPD-MS-1	Water	06/06/22 11:30	06/08/22 05:26
60402313007	S-SCPD-MSD-1	Water	06/06/22 11:30	06/08/22 05:26

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60402313001	S-TMW-4	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60402313002	S-TMW-5	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60402313003	S-TMW-6	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60402313004	S-SCPD-DUP-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60402313005	S-SCPD-FB-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60402313006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60402313007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-4 **Lab ID: 60402313001** Collected: 06/06/22 11:30 Received: 06/08/22 05:26 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	189	ug/L	5.0	0.82	1	06/09/22 09:00	06/17/22 14:47	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	06/09/22 09:00	06/17/22 14:47	7440-41-7	
Boron	80.5J	ug/L	100	7.6	1	06/09/22 09:00	06/17/22 14:47	7440-42-8	
Calcium	125000	ug/L	200	26.5	1	06/09/22 09:00	06/17/22 14:47	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	06/09/22 09:00	06/17/22 14:47	7440-48-4	
Iron	22.4J	ug/L	50.0	7.4	1	06/09/22 09:00	06/17/22 14:47	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	06/09/22 09:00	06/17/22 14:47	7439-92-1	
Lithium	30.0	ug/L	10.0	2.9	1	06/09/22 09:00	06/17/22 14:47	7439-93-2	
Magnesium	29100	ug/L	50.0	24.1	1	06/09/22 09:00	06/17/22 14:47	7439-95-4	
Manganese	511	ug/L	5.0	0.38	1	06/09/22 09:00	06/17/22 14:47	7439-96-5	
Molybdenum	4.1J	ug/L	20.0	0.91	1	06/09/22 09:00	06/17/22 14:47	7439-98-7	
Potassium	5640	ug/L	500	90.1	1	06/09/22 09:00	06/17/22 14:47	7440-09-7	
Sodium	4350	ug/L	500	38.8	1	06/09/22 09:00	06/17/22 14:47	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.19J	ug/L	1.0	0.12	1	06/09/22 09:15	06/15/22 11:20	7440-36-0	
Arsenic	0.64J	ug/L	1.0	0.14	1	06/09/22 09:15	06/15/22 11:20	7440-38-2	
Cadmium	0.063J	ug/L	0.50	0.053	1	06/09/22 09:15	06/15/22 11:20	7440-43-9	
Chromium	0.39J	ug/L	1.0	0.31	1	06/09/22 09:15	06/15/22 11:20	7440-47-3	
Selenium	1.7	ug/L	1.0	0.18	1	06/09/22 09:15	06/15/22 11:20	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/09/22 09:15	06/15/22 11:20	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/24/22 12:49	06/27/22 09:58	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	398	mg/L	20.0	4.6	1		06/15/22 17:33		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	520	mg/L	10.0	10.0	1		06/13/22 10:44		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.9	mg/L	1.0	0.53	1		06/23/22 18:43	16887-00-6	
Fluoride	0.48	mg/L	0.20	0.12	1		06/23/22 18:43	16984-48-8	
Sulfate	42.0	mg/L	10.0	5.5	10		06/23/22 19:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-5 **Lab ID: 60402313002** Collected: 06/06/22 13:02 Received: 06/08/22 05:26 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	186	ug/L	5.0	0.82	1	06/09/22 09:00	06/17/22 14:59	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	06/09/22 09:00	06/17/22 14:59	7440-41-7	
Boron	90.1J	ug/L	100	7.6	1	06/09/22 09:00	06/17/22 14:59	7440-42-8	
Calcium	118000	ug/L	200	26.5	1	06/09/22 09:00	06/17/22 14:59	7440-70-2	
Cobalt	1.7J	ug/L	5.0	1.3	1	06/09/22 09:00	06/17/22 14:59	7440-48-4	
Iron	476	ug/L	50.0	7.4	1	06/09/22 09:00	06/17/22 14:59	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	06/09/22 09:00	06/17/22 14:59	7439-92-1	
Lithium	32.6	ug/L	10.0	2.9	1	06/09/22 09:00	06/17/22 14:59	7439-93-2	
Magnesium	22900	ug/L	50.0	24.1	1	06/09/22 09:00	06/17/22 14:59	7439-95-4	
Manganese	433	ug/L	5.0	0.38	1	06/09/22 09:00	06/17/22 14:59	7439-96-5	
Molybdenum	2.1J	ug/L	20.0	0.91	1	06/09/22 09:00	06/17/22 14:59	7439-98-7	
Potassium	5290	ug/L	500	90.1	1	06/09/22 09:00	06/17/22 14:59	7440-09-7	
Sodium	4340	ug/L	500	38.8	1	06/09/22 09:00	06/17/22 14:59	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.15J	ug/L	1.0	0.12	1	06/09/22 09:15	06/15/22 10:55	7440-36-0	
Arsenic	0.82J	ug/L	1.0	0.14	1	06/09/22 09:15	06/15/22 10:55	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/09/22 09:15	06/15/22 10:55	7440-43-9	
Chromium	0.43J	ug/L	1.0	0.31	1	06/09/22 09:15	06/15/22 10:55	7440-47-3	
Selenium	0.23J	ug/L	1.0	0.18	1	06/09/22 09:15	06/15/22 10:55	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/09/22 09:15	06/15/22 10:55	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/24/22 12:49	06/27/22 10:04	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	361	mg/L	20.0	4.6	1		06/15/22 17:46		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	447	mg/L	10.0	10.0	1		06/13/22 10:44		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.3	mg/L	1.0	0.53	1		06/20/22 22:53	16887-00-6	B
Fluoride	0.34	mg/L	0.20	0.12	1		06/20/22 22:53	16984-48-8	
Sulfate	41.3	mg/L	5.0	2.8	5		06/20/22 23:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-6 **Lab ID: 60402313003** Collected: 06/06/22 14:10 Received: 06/08/22 05:26 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	235	ug/L	5.0	0.82	1	06/09/22 09:00	06/17/22 15:01	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	06/09/22 09:00	06/17/22 15:01	7440-41-7	
Boron	95.0J	ug/L	100	7.6	1	06/09/22 09:00	06/17/22 15:01	7440-42-8	
Calcium	163000	ug/L	200	26.5	1	06/09/22 09:00	06/17/22 15:01	7440-70-2	
Cobalt	1.7J	ug/L	5.0	1.3	1	06/09/22 09:00	06/17/22 15:01	7440-48-4	
Iron	59.5	ug/L	50.0	7.4	1	06/09/22 09:00	06/17/22 15:01	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	06/09/22 09:00	06/17/22 15:01	7439-92-1	
Lithium	39.1	ug/L	10.0	2.9	1	06/09/22 09:00	06/17/22 15:01	7439-93-2	
Magnesium	32700	ug/L	50.0	24.1	1	06/09/22 09:00	06/17/22 15:01	7439-95-4	
Manganese	740	ug/L	5.0	0.38	1	06/09/22 09:00	06/17/22 15:01	7439-96-5	
Molybdenum	2.8J	ug/L	20.0	0.91	1	06/09/22 09:00	06/17/22 15:01	7439-98-7	
Potassium	6260	ug/L	500	90.1	1	06/09/22 09:00	06/17/22 15:01	7440-09-7	
Sodium	4970	ug/L	500	38.8	1	06/09/22 09:00	06/17/22 15:01	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.15J	ug/L	1.0	0.12	1	06/09/22 09:15	06/15/22 11:00	7440-36-0	
Arsenic	0.59J	ug/L	1.0	0.14	1	06/09/22 09:15	06/15/22 11:00	7440-38-2	
Cadmium	0.083J	ug/L	0.50	0.053	1	06/09/22 09:15	06/15/22 11:00	7440-43-9	
Chromium	0.43J	ug/L	1.0	0.31	1	06/09/22 09:15	06/15/22 11:00	7440-47-3	
Selenium	0.55J	ug/L	1.0	0.18	1	06/09/22 09:15	06/15/22 11:00	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/09/22 09:15	06/15/22 11:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/24/22 12:49	06/27/22 10:07	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	513	mg/L	20.0	4.6	1		06/15/22 17:53		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	640	mg/L	10.0	10.0	1		06/13/22 10:45		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	7.6	mg/L	1.0	0.53	1		06/22/22 11:40	16887-00-6	
Fluoride	0.24	mg/L	0.20	0.12	1		06/22/22 11:40	16984-48-8	
Sulfate	45.4	mg/L	10.0	5.5	10		06/22/22 11:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-SCPD-DUP-1 Lab ID: 60402313004 Collected: 06/06/22 00:00 Received: 06/08/22 05:26 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	188	ug/L	5.0	0.82	1	06/09/22 09:00	06/17/22 15:03	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	06/09/22 09:00	06/17/22 15:03	7440-41-7	
Boron	89.2J	ug/L	100	7.6	1	06/09/22 09:00	06/17/22 15:03	7440-42-8	
Calcium	119000	ug/L	200	26.5	1	06/09/22 09:00	06/17/22 15:03	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	06/09/22 09:00	06/17/22 15:03	7440-48-4	
Iron	426	ug/L	50.0	7.4	1	06/09/22 09:00	06/17/22 15:03	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	06/09/22 09:00	06/17/22 15:03	7439-92-1	
Lithium	32.8	ug/L	10.0	2.9	1	06/09/22 09:00	06/17/22 15:03	7439-93-2	
Magnesium	23100	ug/L	50.0	24.1	1	06/09/22 09:00	06/17/22 15:03	7439-95-4	
Manganese	440	ug/L	5.0	0.38	1	06/09/22 09:00	06/17/22 15:03	7439-96-5	
Molybdenum	2.1J	ug/L	20.0	0.91	1	06/09/22 09:00	06/17/22 15:03	7439-98-7	
Potassium	5330	ug/L	500	90.1	1	06/09/22 09:00	06/17/22 15:03	7440-09-7	
Sodium	4360	ug/L	500	38.8	1	06/09/22 09:00	06/17/22 15:03	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.14J	ug/L	1.0	0.12	1	06/09/22 09:15	06/15/22 11:04	7440-36-0	
Arsenic	0.76J	ug/L	1.0	0.14	1	06/09/22 09:15	06/15/22 11:04	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/09/22 09:15	06/15/22 11:04	7440-43-9	
Chromium	0.42J	ug/L	1.0	0.31	1	06/09/22 09:15	06/15/22 11:04	7440-47-3	
Selenium	0.21J	ug/L	1.0	0.18	1	06/09/22 09:15	06/15/22 11:04	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/09/22 09:15	06/15/22 11:04	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/24/22 12:49	06/27/22 10:09	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	363	mg/L	20.0	4.6	1		06/20/22 17:13		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	432	mg/L	10.0	10.0	1		06/13/22 10:45		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.2	mg/L	1.0	0.53	1		06/22/22 12:08	16887-00-6	B
Fluoride	0.34	mg/L	0.20	0.12	1		06/22/22 12:08	16984-48-8	
Sulfate	40.6	mg/L	5.0	2.8	5		06/22/22 12:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-SCPD-FB-1 **Lab ID: 60402313005** Collected: 06/06/22 14:30 Received: 06/08/22 05:26 Matrix: Water

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

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	<0.51	ug/L	5.0	0.51	1	06/10/22 10:30	06/20/22 16:54	7440-39-3	
Beryllium	<0.26	ug/L	1.0	0.26	1	06/10/22 10:30	06/20/22 16:54	7440-41-7	
Boron	<4.2	ug/L	100	4.2	1	06/10/22 10:30	06/20/22 16:54	7440-42-8	
Calcium	<33.7	ug/L	200	33.7	1	06/10/22 10:30	06/20/22 16:54	7440-70-2	
Cobalt	<0.82	ug/L	5.0	0.82	1	06/10/22 10:30	06/20/22 16:54	7440-48-4	
Iron	<5.6	ug/L	50.0	5.6	1	06/10/22 10:30	06/20/22 16:54	7439-89-6	
Lead	<8.6	ug/L	10.0	8.6	1	06/10/22 10:30	06/20/22 16:54	7439-92-1	
Lithium	<5.6	ug/L	10.0	5.6	1	06/10/22 10:30	06/20/22 16:54	7439-93-2	
Magnesium	<27.1	ug/L	50.0	27.1	1	06/10/22 10:30	06/20/22 16:54	7439-95-4	
Manganese	<0.24	ug/L	5.0	0.24	1	06/10/22 10:30	06/20/22 16:54	7439-96-5	
Molybdenum	<0.90	ug/L	20.0	0.90	1	06/10/22 10:30	06/20/22 16:54	7439-98-7	
Potassium	<87.6	ug/L	500	87.6	1	06/10/22 10:30	06/20/22 16:54	7440-09-7	
Sodium	351J	ug/L	500	73.2	1	06/10/22 10:30	06/20/22 16:54	7440-23-5	B
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	06/09/22 09:15	06/15/22 10:53	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	06/09/22 09:15	06/15/22 10:53	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/09/22 09:15	06/15/22 10:53	7440-43-9	
Chromium	0.42J	ug/L	1.0	0.31	1	06/09/22 09:15	06/15/22 10:53	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	06/09/22 09:15	06/15/22 10:53	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/09/22 09:15	06/15/22 10:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	06/24/22 12:49	06/27/22 10:16	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	8.4J	mg/L	20.0	4.6	1		06/20/22 17:26		
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		06/13/22 10:45		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<0.53	mg/L	1.0	0.53	1		06/22/22 12:36	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		06/22/22 12:36	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		06/22/22 12:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 794216

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

METHOD BLANK: 3163960

Matrix: Water

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.064	0.20	0.064	06/27/22 09:53	

LABORATORY CONTROL SAMPLE: 3163961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3163962 3163963

Parameter	Units	3163962		3163963		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60402313001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.064	5	5	5.2	5.1	104	103	75-125	1	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 791425 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004

METHOD BLANK: 3153625 Matrix: Water

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.82	5.0	0.82	06/17/22 14:31	
Beryllium	ug/L	<0.080	1.0	0.080	06/17/22 14:31	
Boron	ug/L	<7.6	100	7.6	06/17/22 14:31	
Calcium	ug/L	<26.5	200	26.5	06/17/22 14:31	
Cobalt	ug/L	<1.3	5.0	1.3	06/17/22 14:31	
Iron	ug/L	<7.4	50.0	7.4	06/17/22 14:31	
Lead	ug/L	<2.8	10.0	2.8	06/17/22 14:31	
Lithium	ug/L	<2.9	10.0	2.9	06/17/22 14:31	
Magnesium	ug/L	<24.1	50.0	24.1	06/17/22 14:31	
Manganese	ug/L	<0.38	5.0	0.38	06/17/22 14:31	
Molybdenum	ug/L	<0.91	20.0	0.91	06/17/22 14:31	
Potassium	ug/L	<90.1	500	90.1	06/17/22 14:31	
Sodium	ug/L	181J	500	38.8	06/17/22 14:31	

LABORATORY CONTROL SAMPLE: 3153626

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	976	98	85-115	
Beryllium	ug/L	1000	989	99	85-115	
Boron	ug/L	1000	906	91	85-115	
Calcium	ug/L	10000	9730	97	85-115	
Cobalt	ug/L	1000	954	95	85-115	
Iron	ug/L	10000	10000	100	85-115	
Lead	ug/L	1000	972	97	85-115	
Lithium	ug/L	1000	966	97	85-115	
Magnesium	ug/L	10000	9510	95	85-115	
Manganese	ug/L	1000	971	97	85-115	
Molybdenum	ug/L	1000	972	97	85-115	
Potassium	ug/L	10000	9620	96	85-115	
Sodium	ug/L	10000	10500	105	85-115	

MATRIX SPIKE SAMPLE: 3153627

Parameter	Units	60402373001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	75.4	1000	1060	99	70-130	
Beryllium	ug/L	ND	1000	1010	101	70-130	
Boron	ug/L	49.1J	1000	981	93	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

MATRIX SPIKE SAMPLE: 3153627		60402373001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Calcium	ug/L	52200	10000	61800	95	70-130	
Cobalt	ug/L	ND	1000	974	97	70-130	
Iron	ug/L	1330	10000	11600	103	70-130	
Lead	ug/L	ND	1000	1000	100	70-130	
Lithium	ug/L	15.4	1000	1010	100	70-130	
Magnesium	ug/L	12800	10000	22500	98	70-130	
Manganese	ug/L	45.9	1000	1030	99	70-130	
Molybdenum	ug/L	1.7J	1000	1000	100	70-130	
Potassium	ug/L	6890	10000	17200	103	70-130	
Sodium	ug/L	116000	10000	126000	97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3153628		3153629									
Parameter	Units	60402313001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	
Barium	ug/L	189	1000	1000	1160	1200	97	102	70-130	4	20
Beryllium	ug/L	<0.080	1000	1000	985	1010	98	101	70-130	3	20
Boron	ug/L	80.5J	1000	1000	998	1040	92	96	70-130	4	20
Calcium	ug/L	125000	10000	10000	132000	135000	70	108	70-130	3	20
Cobalt	ug/L	<1.3	1000	1000	939	967	94	97	70-130	3	20
Iron	ug/L	22.4J	10000	10000	9980	10500	100	105	70-130	5	20
Lead	ug/L	<2.8	1000	1000	973	1000	97	100	70-130	3	20
Lithium	ug/L	30.0	1000	1000	1010	1060	98	103	70-130	5	20
Magnesium	ug/L	29100	10000	10000	38100	39200	90	101	70-130	3	20
Manganese	ug/L	511	1000	1000	1470	1510	96	100	70-130	3	20
Molybdenum	ug/L	4.1J	1000	1000	987	1020	98	101	70-130	3	20
Potassium	ug/L	5640	10000	10000	15400	16100	98	105	70-130	5	20
Sodium	ug/L	4350	10000	10000	14200	14700	98	103	70-130	3	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 791630

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313005

METHOD BLANK: 3154407

Matrix: Water

Associated Lab Samples: 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	2.8J	5.0	0.51	06/20/22 16:25	
Beryllium	ug/L	<0.26	1.0	0.26	06/20/22 16:25	
Boron	ug/L	<4.2	100	4.2	06/20/22 16:25	
Calcium	ug/L	<33.7	200	33.7	06/20/22 16:25	
Cobalt	ug/L	0.89J	5.0	0.82	06/20/22 16:25	
Iron	ug/L	<5.6	50.0	5.6	06/20/22 16:25	
Lead	ug/L	<8.6	10.0	8.6	06/20/22 16:25	
Lithium	ug/L	<5.6	10.0	5.6	06/20/22 16:25	
Magnesium	ug/L	<27.1	50.0	27.1	06/20/22 16:25	
Manganese	ug/L	<0.24	5.0	0.24	06/20/22 16:25	
Molybdenum	ug/L	<0.90	20.0	0.90	06/20/22 16:25	
Potassium	ug/L	<87.6	500	87.6	06/20/22 16:25	
Sodium	ug/L	230J	500	73.2	06/20/22 16:25	

LABORATORY CONTROL SAMPLE: 3154408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1000	100	85-115	
Beryllium	ug/L	1000	1030	103	85-115	
Boron	ug/L	1000	929	93	85-115	
Calcium	ug/L	10000	10300	103	85-115	
Cobalt	ug/L	1000	990	99	85-115	
Iron	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1010	101	85-115	
Lithium	ug/L	1000	990	99	85-115	
Magnesium	ug/L	10000	10100	101	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9960	100	85-115	
Sodium	ug/L	10000	10600	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3154409

3154410

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Result	Conc.						
Barium	ug/L	61.3	1000	1000	1060	100	97	70-130	2	20	
Beryllium	ug/L	ND	1000	1000	1030	103	102	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Parameter	Units	60402327002		3154409		3154410		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Boron	ug/L	ND	1000	1000	1010	994	94	92	70-130	2	20			
Calcium	ug/L	58100	10000	10000	68900	66900	108	88	70-130	3	20			
Cobalt	ug/L	ND	1000	1000	975	966	97	96	70-130	1	20			
Iron	ug/L	ND	10000	10000	10100	9990	101	100	70-130	2	20			
Lead	ug/L	ND	1000	1000	993	993	99	99	70-130	0	20			
Lithium	ug/L	ND	1000	1000	997	981	99	98	70-130	2	20			
Magnesium	ug/L	4160	10000	10000	14100	13700	99	96	70-130	3	20			
Manganese	ug/L	ND	1000	1000	1000	990	100	99	70-130	1	20			
Molybdenum	ug/L	ND	1000	1000	1020	1000	102	100	70-130	2	20			
Potassium	ug/L	5730	10000	10000	15900	15600	102	99	70-130	2	20			
Sodium	ug/L	20300	10000	10000	30800	29900	104	96	70-130	3	20			

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch:	791374	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

METHOD BLANK: 3153471 Matrix: Water
Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	06/15/22 10:29	
Arsenic	ug/L	<0.14	1.0	0.14	06/15/22 10:29	
Cadmium	ug/L	<0.053	0.50	0.053	06/15/22 10:29	
Chromium	ug/L	<0.31	1.0	0.31	06/15/22 10:29	
Selenium	ug/L	<0.18	1.0	0.18	06/15/22 10:29	
Thallium	ug/L	<0.15	1.0	0.15	06/15/22 10:29	

LABORATORY CONTROL SAMPLE: 3153472

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.7	99	85-115	
Arsenic	ug/L	40	39.4	99	85-115	
Cadmium	ug/L	40	40.9	102	85-115	
Chromium	ug/L	40	40.1	100	85-115	
Selenium	ug/L	40	41.3	103	85-115	
Thallium	ug/L	40	38.1	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3153473 3153474

Parameter	Units	3153473		3153474		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	ug/L	0.19J	40	40	38.2	39.3	95	98	70-130	3	20
Arsenic	ug/L	0.64J	40	40	38.6	40.0	95	98	70-130	3	20
Cadmium	ug/L	0.063J	40	40	38.5	39.3	96	98	70-130	2	20
Chromium	ug/L	0.39J	40	40	38.9	39.8	96	99	70-130	2	20
Selenium	ug/L	1.7	40	40	40.4	41.6	97	100	70-130	3	20
Thallium	ug/L	<0.15	40	40	39.1	40.2	98	101	70-130	3	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 792534

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory:

Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001, 60402313002, 60402313003

METHOD BLANK: 3157547

Matrix: Water

Associated Lab Samples: 60402313001, 60402313002, 60402313003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	06/15/22 14:58	

LABORATORY CONTROL SAMPLE: 3157548

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

SAMPLE DUPLICATE: 3157549

Parameter	Units	60402841004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	252	250	1	10	

SAMPLE DUPLICATE: 3157550

Parameter	Units	60402313001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	398	403	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 793175	Analysis Method: SM 2320B
QC Batch Method: SM 2320B	Analysis Description: 2320B Alkalinity
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313004, 60402313005

METHOD BLANK: 3160266 Matrix: Water

Associated Lab Samples: 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	06/20/22 17:03	

LABORATORY CONTROL SAMPLE: 3160267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	489	98	90-110	

SAMPLE DUPLICATE: 3160268

Parameter	Units	60402313004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	363	359	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch:	791840	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

METHOD BLANK: 3155347 Matrix: Water
Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/13/22 10:44	

LABORATORY CONTROL SAMPLE: 3155348

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

SAMPLE DUPLICATE: 3155349

Parameter	Units	60402313001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	520	484	7	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 793045

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313002

METHOD BLANK: 3159508

Matrix: Water

Associated Lab Samples: 60402313002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.59J	1.0	0.53	06/20/22 12:44	
Fluoride	mg/L	<0.12	0.20	0.12	06/20/22 12:44	
Sulfate	mg/L	<0.55	1.0	0.55	06/20/22 12:44	

METHOD BLANK: 3162469

Matrix: Water

Associated Lab Samples: 60402313002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/21/22 08:56	
Fluoride	mg/L	<0.12	0.20	0.12	06/21/22 08:56	
Sulfate	mg/L	<0.55	1.0	0.55	06/21/22 08:56	

LABORATORY CONTROL SAMPLE: 3159509

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	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 3162470

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	2.7	107	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch:	793413	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313003, 60402313004, 60402313005

METHOD BLANK: 3160945 Matrix: Water

Associated Lab Samples: 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.60J	1.0	0.53	06/21/22 08:54	
Fluoride	mg/L	<0.12	0.20	0.12	06/21/22 08:54	
Sulfate	mg/L	<0.55	1.0	0.55	06/21/22 08:54	

METHOD BLANK: 3164182 Matrix: Water

Associated Lab Samples: 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/22/22 18:21	
Fluoride	mg/L	<0.12	0.20	0.12	06/22/22 18:21	
Sulfate	mg/L	<0.55	1.0	0.55	06/22/22 18:21	

METHOD BLANK: 3164339 Matrix: Water

Associated Lab Samples: 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/23/22 17:20	
Fluoride	mg/L	<0.12	0.20	0.12	06/23/22 17:20	
Sulfate	mg/L	<0.55	1.0	0.55	06/23/22 17:20	

METHOD BLANK: 3165816 Matrix: Water

Associated Lab Samples: 60402313003, 60402313004, 60402313005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/24/22 08:58	
Fluoride	mg/L	<0.12	0.20	0.12	06/24/22 08:58	
Sulfate	mg/L	<0.55	1.0	0.55	06/24/22 08:58	

LABORATORY CONTROL SAMPLE: 3160946

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	2.6	104	90-110	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

LABORATORY CONTROL SAMPLE: 3160946

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

LABORATORY CONTROL SAMPLE: 3164183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 3164340

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

LABORATORY CONTROL SAMPLE: 3165817

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3160947 3160948

Parameter	Units	60403189006		MS		MSD		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result						
Chloride	mg/L	5.5	5	5	10	9.9	90	89	80-120	0	15		
Fluoride	mg/L	<0.12	2.5	2.5	2.5	2.5	101	102	80-120	1	15		
Sulfate	mg/L	10.6	5	5	15.8	15.8	104	103	80-120	0	15		

MATRIX SPIKE SAMPLE: 3160949

Parameter	Units	60402313005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	<0.53	5	4.8	97	80-120	
Fluoride	mg/L	<0.12	2.5	2.9	118	80-120	
Sulfate	mg/L	<0.55	5	4.9	98	80-120	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 793857

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60402313001

METHOD BLANK: 3162676

Matrix: Water

Associated Lab Samples: 60402313001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/23/22 11:40	
Fluoride	mg/L	<0.12	0.20	0.12	06/23/22 11:40	
Sulfate	mg/L	<0.55	1.0	0.55	06/23/22 11:40	

METHOD BLANK: 3164502

Matrix: Water

Associated Lab Samples: 60402313001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/24/22 08:58	
Fluoride	mg/L	<0.12	0.20	0.12	06/24/22 08:58	
Sulfate	mg/L	<0.55	1.0	0.55	06/24/22 08:58	

LABORATORY CONTROL SAMPLE: 3162677

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

LABORATORY CONTROL SAMPLE: 3164503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE SAMPLE: 3162680

Parameter	Units	60403504001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5.6J	50	48.4	86	80-120	H1,M1
Fluoride	mg/L			29.4			H1
Sulfate	mg/L	29.0	50	77.3	96	80-120	H1,M1

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3162681												3162682	
Parameter	Units	60402313001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max		
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual	
Chloride	mg/L	2.9	5	5	7.7	7.7	96	96	80-120	0	15		
Fluoride	mg/L	0.48	2.5	2.5	3.4	3.4	116	116	80-120	0	15		
Sulfate	mg/L	42.0	50	50	91.0	90.6	98	97	80-120	0	15		

SAMPLE DUPLICATE: 3162683

Parameter	Units	60402313001		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Chloride	mg/L	2.9	2.9	2.9	1	15	
Fluoride	mg/L	0.48	0.46	0.46	4	15	
Sulfate	mg/L	42.0	41.5	41.5	1	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-4 **Lab ID: 60402313001** Collected: 06/06/22 11:30 Received: 06/08/22 05:26 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.253 ± 0.332 (0.553) C:NA T:93%	pCi/L	07/13/22 15:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.566 ± 0.352 (0.658) C:77% T:93%	pCi/L	07/06/22 13:13	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-5 **Lab ID: 60402313002** Collected: 06/06/22 13:02 Received: 06/08/22 05:26 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.148 ± 0.341 (0.617) C:NA T:97%	pCi/L	07/13/22 15:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.18 ± 0.410 (0.568) C:77% T:97%	pCi/L	07/06/22 13:13	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-TMW-6 **Lab ID: 60402313003** Collected: 06/06/22 14:10 Received: 06/08/22 05:26 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0817 ± 0.300 (0.576) C:NA T:94%	pCi/L	07/13/22 15:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.946 ± 0.434 (0.730) C:71% T:94%	pCi/L	07/06/22 13:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-SCPD-DUP-1 **Lab ID: 60402313004** Collected: 06/06/22 00:00 Received: 06/08/22 05:26 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.328 ± 0.361 (0.578) C:NA T:91%	pCi/L	07/13/22 15:14	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.776 ± 0.366 (0.617) C:80% T:91%	pCi/L	07/06/22 13:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Sample: S-SCPD-FB-1 **Lab ID: 60402313005** Collected: 06/06/22 14:30 Received: 06/08/22 05:26 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0449 ± 0.341 (0.712) C:NA T:91%	pCi/L	07/13/22 15:14	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.672 ± 0.343 (0.592) C:80% T:91%	pCi/L	07/06/22 13:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60402313006 Collected: 06/06/22 11:30 Received: 06/08/22 05:26 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	86.24 %REC ± NA (NA) C:NA T:NA	pCi/L	07/13/22 15:14	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	98.53 %REC ± NA (NA) C:NA T:NA	pCi/L	07/06/22 13:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	71.70 %REC 18.41RPD ± NA (NA) C:NA T:NA	pCi/L	07/13/22 17:29	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	85.38 %REC 14.29 RPD ± NA (NA) C:NA T:NA	pCi/L	07/06/22 13:11	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 511739

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005, 60402313006, 60402313007

METHOD BLANK: 2480201

Matrix: Water

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005, 60402313006, 60402313007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.165 ± 0.303 (0.541) C:NA T:87%	pCi/L	07/13/22 15:14	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

QC Batch: 511740

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005, 60402313006, 60402313007

METHOD BLANK: 2480203

Matrix: Water

Associated Lab Samples: 60402313001, 60402313002, 60402313003, 60402313004, 60402313005, 60402313006, 60402313007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.377 ± 0.322 (0.642) C:77% T:87%	pCi/L	07/06/22 13:23	

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60402313001	S-TMW-4	EPA 200.7	791425	EPA 200.7	791626
60402313002	S-TMW-5	EPA 200.7	791425	EPA 200.7	791626
60402313003	S-TMW-6	EPA 200.7	791425	EPA 200.7	791626
60402313004	S-SCPD-DUP-1	EPA 200.7	791425	EPA 200.7	791626
60402313005	S-SCPD-FB-1	EPA 200.7	791630	EPA 200.7	791750
60402313001	S-TMW-4	EPA 200.8	791374	EPA 200.8	791606
60402313002	S-TMW-5	EPA 200.8	791374	EPA 200.8	791606
60402313003	S-TMW-6	EPA 200.8	791374	EPA 200.8	791606
60402313004	S-SCPD-DUP-1	EPA 200.8	791374	EPA 200.8	791606
60402313005	S-SCPD-FB-1	EPA 200.8	791374	EPA 200.8	791606
60402313001	S-TMW-4	EPA 7470	794216	EPA 7470	794344
60402313002	S-TMW-5	EPA 7470	794216	EPA 7470	794344
60402313003	S-TMW-6	EPA 7470	794216	EPA 7470	794344
60402313004	S-SCPD-DUP-1	EPA 7470	794216	EPA 7470	794344
60402313005	S-SCPD-FB-1	EPA 7470	794216	EPA 7470	794344
60402313001	S-TMW-4	EPA 903.1	511739		
60402313002	S-TMW-5	EPA 903.1	511739		
60402313003	S-TMW-6	EPA 903.1	511739		
60402313004	S-SCPD-DUP-1	EPA 903.1	511739		
60402313005	S-SCPD-FB-1	EPA 903.1	511739		
60402313006	S-SCPD-MS-1	EPA 903.1	511739		
60402313007	S-SCPD-MSD-1	EPA 903.1	511739		
60402313001	S-TMW-4	EPA 904.0	511740		
60402313002	S-TMW-5	EPA 904.0	511740		
60402313003	S-TMW-6	EPA 904.0	511740		
60402313004	S-SCPD-DUP-1	EPA 904.0	511740		
60402313005	S-SCPD-FB-1	EPA 904.0	511740		
60402313006	S-SCPD-MS-1	EPA 904.0	511740		
60402313007	S-SCPD-MSD-1	EPA 904.0	511740		
60402313001	S-TMW-4	SM 2320B	792534		
60402313002	S-TMW-5	SM 2320B	792534		
60402313003	S-TMW-6	SM 2320B	792534		
60402313004	S-SCPD-DUP-1	SM 2320B	793175		
60402313005	S-SCPD-FB-1	SM 2320B	793175		
60402313001	S-TMW-4	SM 2540C	791840		
60402313002	S-TMW-5	SM 2540C	791840		
60402313003	S-TMW-6	SM 2540C	791840		
60402313004	S-SCPD-DUP-1	SM 2540C	791840		
60402313005	S-SCPD-FB-1	SM 2540C	791840		
60402313001	S-TMW-4	EPA 300.0	793857		
60402313002	S-TMW-5	EPA 300.0	793045		
60402313003	S-TMW-6	EPA 300.0	793413		
60402313004	S-SCPD-DUP-1	EPA 300.0	793413		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60402313

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60402313005	S-SCPD-FB-1	EPA 300.0	793413		

REPORT OF LABORATORY ANALYSIS

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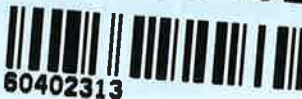


DC#_ Title: ENV-FRM-LENE-0009_Sample C

Revision: 2

Effective Date: 01/12/2022

WO#: 60402313



Client Name: Cooler

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 2pc

Thermometer Used: T301 Type of Ice Wet Blue None

Cooler Temperature (°C): As-read 17.4 Corr. Factor -1.0 Corrected 16.4

Date and initials of person examining contents: 06-08-2022

Temperature should be above freezing to 6°C 1.4 0.4

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	cooler out of temp had
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	only radium
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>wt</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

MEMORANDUM**DATE** August 8, 2022**Project No.** 153140604.0003**TO** Project File
Golder Associates**CC** Amanda Derhake, Jeff Ingram**FROM** Annie Muehlfarth**EMAIL** ann.muehlfarth@wsp.com**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #5 - DATA PACKAGE 60402313**

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 sample was not preserved correctly and adjusted by the laboratory, the sample was qualified as an estimate (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 a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Laboratory: Pace Analytical

SDG #: 60402313

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>6/6/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were the correct preservatives used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max RPD: 7% [<10%]

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments/Notes:

One cooler received outside of temperature, but contained only radium samples. No qualification necessary.

Nitric acid was added to radium sample for -005 top meet preservation requirement of pH <2 for radiochemistry analysis, results qualified as estimates.

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

Blanks:

3153625: Sodium (181J), associated with samples -001 through -004. Associated sample results >RL and 10x blank, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

3154407: Barium (2.8J), cobalt (0.89J), sodium (230J), associated with sample -005. ND results not qualified. Results <RL reported at RL and qualified as estimated ND.

3159508: Chloride (0.59J), associated with sample -002. Sample result >RL but <10x blank, qualified as estimate.

3160945: Chloride (0.60J), associated with samples -003 through -005. Results >RL and 10x blank or ND not qualified. Sample results >RL but <10x blank, qualified as estimate.

S-SCPD-FB-1 @ S-TMW-6: Sodium (351J), chromium (0.42J), alkalinity (8.4J), radium-228 (0.672 ± 0.343). Sample results >RL and 10x blank were not qualified. Results <RL reported at RL and qualified as estimated ND. Results >RL but <10x blank qualified as estimate.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: Cobalt detected in parent sample, ND in dup. RPD exceeds limit (20%) for radium-228 (41.3%).

July 28, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60403818

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on June 23, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60403818001	S-TMW-4	Water	06/20/22 10:23	06/23/22 03:47
60403818002	S-TMW-5	Water	06/20/22 11:44	06/23/22 03:47
60403818003	S-TMW-6	Water	06/20/22 12:48	06/23/22 03:47
60403818004	S-SCPD-DUP-1	Water	06/20/22 00:00	06/23/22 03:47
60403818005	S-SCPD-FB-1	Water	06/20/22 12:58	06/23/22 03:47
60403818006	S-SCPD-MS-1	Water	06/20/22 10:23	06/23/22 03:47
60403818007	S-SCPD-MSD-1	Water	06/20/22 10:23	06/23/22 03:47

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60403818001	S-TMW-4	EPA 200.7	MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60403818002	S-TMW-5	EPA 200.7	MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60403818003	S-TMW-6	EPA 200.7	MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60403818004	S-SCPD-DUP-1	EPA 200.7	MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60403818005	S-SCPD-FB-1	EPA 200.7	MRV	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	KB	1	PASI-K
		SM 2540C	SK	1	PASI-K
		EPA 300.0	KB	3	PASI-K
60403818006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60403818007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-4 **Lab ID: 60403818001** Collected: 06/20/22 10:23 Received: 06/23/22 03:47 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	214	ug/L	5.0	0.82	1	07/01/22 10:45	07/11/22 11:30	7440-39-3	
Beryllium	0.22J	ug/L	1.0	0.080	1	07/01/22 10:45	07/11/22 11:30	7440-41-7	B
Boron	96.3J	ug/L	100	7.6	1	07/01/22 10:45	07/11/22 11:30	7440-42-8	
Calcium	138000	ug/L	200	26.5	1	07/01/22 10:45	07/11/22 11:30	7440-70-2	M1
Cobalt	<1.3	ug/L	5.0	1.3	1	07/01/22 10:45	07/11/22 11:30	7440-48-4	
Iron	10.9J	ug/L	50.0	7.4	1	07/01/22 10:45	07/11/22 11:30	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/01/22 10:45	07/11/22 11:30	7439-92-1	
Lithium	38.1	ug/L	10.0	2.9	1	07/01/22 10:45	07/11/22 11:30	7439-93-2	
Magnesium	33100	ug/L	50.0	24.1	1	07/01/22 10:45	07/11/22 11:30	7439-95-4	
Manganese	358	ug/L	5.0	0.38	1	07/01/22 10:45	07/11/22 11:30	7439-96-5	
Molybdenum	5.0J	ug/L	20.0	0.91	1	07/01/22 10:45	07/11/22 11:30	7439-98-7	B
Potassium	6280	ug/L	500	90.1	1	07/01/22 10:45	07/11/22 11:30	7440-09-7	
Sodium	4730	ug/L	500	38.8	1	07/01/22 10:45	07/11/22 11:30	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.17J	ug/L	1.0	0.12	1	06/27/22 12:14	06/30/22 12:57	7440-36-0	
Arsenic	0.44J	ug/L	1.0	0.14	1	06/27/22 12:14	06/30/22 12:57	7440-38-2	
Cadmium	0.062J	ug/L	0.50	0.053	1	06/27/22 12:14	06/30/22 12:57	7440-43-9	
Chromium	0.50J	ug/L	1.0	0.31	1	06/27/22 12:14	06/30/22 12:57	7440-47-3	
Selenium	1.9	ug/L	1.0	0.18	1	06/27/22 12:14	06/30/22 12:57	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/27/22 12:14	06/30/22 12:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/13/22 13:46	07/14/22 13:07	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	411	mg/L	20.0	4.6	1		07/01/22 16:01		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	505	mg/L	10.0	10.0	1		06/27/22 15:46		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.7	mg/L	1.0	0.53	1		06/30/22 20:11	16887-00-6	
Fluoride	0.46	mg/L	0.20	0.12	1		06/30/22 20:11	16984-48-8	
Sulfate	42.9	mg/L	10.0	5.5	10		06/30/22 21:34	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-5 **Lab ID: 60403818002** Collected: 06/20/22 11:44 Received: 06/23/22 03:47 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	185	ug/L	5.0	0.82	1	07/01/22 10:45	07/11/22 12:50	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/01/22 10:45	07/11/22 12:50	7440-41-7	
Boron	94.4J	ug/L	100	7.6	1	07/01/22 10:45	07/11/22 12:50	7440-42-8	
Calcium	119000	ug/L	200	26.5	1	07/01/22 10:45	07/11/22 12:50	7440-70-2	
Cobalt	1.7J	ug/L	5.0	1.3	1	07/01/22 10:45	07/11/22 12:50	7440-48-4	
Iron	278	ug/L	50.0	7.4	1	07/01/22 10:45	07/11/22 12:50	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/01/22 10:45	07/11/22 12:50	7439-92-1	
Lithium	35.2	ug/L	10.0	2.9	1	07/01/22 10:45	07/11/22 12:50	7439-93-2	
Magnesium	23100	ug/L	50.0	24.1	1	07/01/22 10:45	07/11/22 12:50	7439-95-4	
Manganese	447	ug/L	5.0	0.38	1	07/01/22 10:45	07/11/22 12:50	7439-96-5	
Molybdenum	3.5J	ug/L	20.0	0.91	1	07/01/22 10:45	07/11/22 12:50	7439-98-7	B
Potassium	5280	ug/L	500	90.1	1	07/01/22 10:45	07/11/22 12:50	7440-09-7	
Sodium	4220	ug/L	500	38.8	1	07/01/22 10:45	07/11/22 12:50	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.14J	ug/L	1.0	0.12	1	06/27/22 12:14	06/30/22 13:13	7440-36-0	
Arsenic	0.73J	ug/L	1.0	0.14	1	06/27/22 12:14	06/30/22 13:13	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/27/22 12:14	06/30/22 13:13	7440-43-9	
Chromium	0.39J	ug/L	1.0	0.31	1	06/27/22 12:14	06/30/22 13:13	7440-47-3	
Selenium	0.19J	ug/L	1.0	0.18	1	06/27/22 12:14	06/30/22 13:13	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/27/22 12:14	06/30/22 13:13	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/13/22 13:46	07/14/22 13:14	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	356	mg/L	20.0	4.6	1		07/01/22 16:15		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	424	mg/L	10.0	10.0	1		06/27/22 15:46		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.1	mg/L	1.0	0.53	1		06/30/22 22:30	16887-00-6	
Fluoride	0.49	mg/L	0.20	0.12	1		06/30/22 22:30	16984-48-8	
Sulfate	40.1	mg/L	5.0	2.8	5		06/30/22 22:44	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-6 **Lab ID: 60403818003** Collected: 06/20/22 12:48 Received: 06/23/22 03:47 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	239	ug/L	5.0	0.82	1	07/01/22 10:45	07/11/22 12:25	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/01/22 10:45	07/11/22 12:25	7440-41-7	
Boron	97.8J	ug/L	100	7.6	1	07/01/22 10:45	07/11/22 12:25	7440-42-8	
Calcium	167000	ug/L	200	26.5	1	07/01/22 10:45	07/11/22 12:25	7440-70-2	
Cobalt	1.8J	ug/L	5.0	1.3	1	07/01/22 10:45	07/11/22 12:25	7440-48-4	
Iron	81.0	ug/L	50.0	7.4	1	07/01/22 10:45	07/11/22 12:25	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/01/22 10:45	07/11/22 12:25	7439-92-1	
Lithium	41.8	ug/L	10.0	2.9	1	07/01/22 10:45	07/11/22 12:25	7439-93-2	
Magnesium	33500	ug/L	50.0	24.1	1	07/01/22 10:45	07/11/22 12:25	7439-95-4	
Manganese	798	ug/L	5.0	0.38	1	07/01/22 10:45	07/11/22 12:25	7439-96-5	
Molybdenum	3.4J	ug/L	20.0	0.91	1	07/01/22 10:45	07/11/22 12:25	7439-98-7	B
Potassium	6120	ug/L	500	90.1	1	07/01/22 10:45	07/11/22 12:25	7440-09-7	
Sodium	4900	ug/L	500	38.8	1	07/01/22 10:45	07/11/22 12:25	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.14J	ug/L	1.0	0.12	1	06/27/22 12:14	06/30/22 13:17	7440-36-0	
Arsenic	0.58J	ug/L	1.0	0.14	1	06/27/22 12:14	06/30/22 13:17	7440-38-2	
Cadmium	0.082J	ug/L	0.50	0.053	1	06/27/22 12:14	06/30/22 13:17	7440-43-9	
Chromium	0.50J	ug/L	1.0	0.31	1	06/27/22 12:14	06/30/22 13:17	7440-47-3	
Selenium	0.64J	ug/L	1.0	0.18	1	06/27/22 12:14	06/30/22 13:17	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/27/22 12:14	06/30/22 13:17	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/13/22 13:46	07/14/22 13:16	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	508	mg/L	20.0	4.6	1		07/01/22 16:21		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	622	mg/L	10.0	10.0	1		06/27/22 15:46		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	6.0	mg/L	1.0	0.53	1		06/30/22 22:57	16887-00-6	
Fluoride	0.36	mg/L	0.20	0.12	1		06/30/22 22:57	16984-48-8	
Sulfate	46.5	mg/L	10.0	5.5	10		06/30/22 23:39	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-SCPD-DUP-1 **Lab ID: 60403818004** Collected: 06/20/22 00:00 Received: 06/23/22 03:47 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	179	ug/L	5.0	0.82	1	07/01/22 10:45	07/11/22 12:27	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/01/22 10:45	07/11/22 12:27	7440-41-7	
Boron	89.7J	ug/L	100	7.6	1	07/01/22 10:45	07/11/22 12:27	7440-42-8	
Calcium	115000	ug/L	200	26.5	1	07/01/22 10:45	07/11/22 12:27	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	07/01/22 10:45	07/11/22 12:27	7440-48-4	
Iron	309	ug/L	50.0	7.4	1	07/01/22 10:45	07/11/22 12:27	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/01/22 10:45	07/11/22 12:27	7439-92-1	
Lithium	34.8	ug/L	10.0	2.9	1	07/01/22 10:45	07/11/22 12:27	7439-93-2	
Magnesium	22500	ug/L	50.0	24.1	1	07/01/22 10:45	07/11/22 12:27	7439-95-4	
Manganese	439	ug/L	5.0	0.38	1	07/01/22 10:45	07/11/22 12:27	7439-96-5	
Molybdenum	3.0J	ug/L	20.0	0.91	1	07/01/22 10:45	07/11/22 12:27	7439-98-7	B
Potassium	5140	ug/L	500	90.1	1	07/01/22 10:45	07/11/22 12:27	7440-09-7	
Sodium	4070	ug/L	500	38.8	1	07/01/22 10:45	07/11/22 12:27	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.13J	ug/L	1.0	0.12	1	06/27/22 12:14	06/30/22 13:21	7440-36-0	
Arsenic	0.73J	ug/L	1.0	0.14	1	06/27/22 12:14	06/30/22 13:21	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/27/22 12:14	06/30/22 13:21	7440-43-9	
Chromium	0.55J	ug/L	1.0	0.31	1	06/27/22 12:14	06/30/22 13:21	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	06/27/22 12:14	06/30/22 13:21	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/27/22 12:14	06/30/22 13:21	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/13/22 13:46	07/14/22 13:18	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	356	mg/L	20.0	4.6	1		07/01/22 16:29		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	440	mg/L	10.0	10.0	1		06/27/22 15:46		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.1	mg/L	1.0	0.53	1		06/30/22 23:53	16887-00-6	
Fluoride	0.50	mg/L	0.20	0.12	1		06/30/22 23:53	16984-48-8	
Sulfate	40.1	mg/L	5.0	2.8	5		07/01/22 00:07	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-SCPD-FB-1 Lab ID: 60403818005 Collected: 06/20/22 12:58 Received: 06/23/22 03:47 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	<0.82	ug/L	5.0	0.82	1	07/01/22 10:45	07/11/22 12:29	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/01/22 10:45	07/11/22 12:29	7440-41-7	
Boron	<7.6	ug/L	100	7.6	1	07/01/22 10:45	07/11/22 12:29	7440-42-8	
Calcium	<26.5	ug/L	200	26.5	1	07/01/22 10:45	07/11/22 12:29	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	07/01/22 10:45	07/11/22 12:29	7440-48-4	
Iron	<7.4	ug/L	50.0	7.4	1	07/01/22 10:45	07/11/22 12:29	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/01/22 10:45	07/11/22 12:29	7439-92-1	
Lithium	<2.9	ug/L	10.0	2.9	1	07/01/22 10:45	07/11/22 12:29	7439-93-2	
Magnesium	<24.1	ug/L	50.0	24.1	1	07/01/22 10:45	07/11/22 12:29	7439-95-4	
Manganese	<0.38	ug/L	5.0	0.38	1	07/01/22 10:45	07/11/22 12:29	7439-96-5	
Molybdenum	<0.91	ug/L	20.0	0.91	1	07/01/22 10:45	07/11/22 12:29	7439-98-7	
Potassium	<90.1	ug/L	500	90.1	1	07/01/22 10:45	07/11/22 12:29	7440-09-7	
Sodium	<38.8	ug/L	500	38.8	1	07/01/22 10:45	07/11/22 12:29	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	06/27/22 12:14	06/30/22 13:25	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	06/27/22 12:14	06/30/22 13:25	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	06/27/22 12:14	06/30/22 13:25	7440-43-9	
Chromium	0.42J	ug/L	1.0	0.31	1	06/27/22 12:14	06/30/22 13:25	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	06/27/22 12:14	06/30/22 13:25	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	06/27/22 12:14	06/30/22 13:25	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/13/22 13:46	07/14/22 13:21	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	8.8J	mg/L	20.0	4.6	1		07/01/22 16:35		
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		06/27/22 15:46		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	<0.53	mg/L	1.0	0.53	1		07/01/22 00:21	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		07/01/22 00:21	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		07/01/22 00:21	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch:	797291	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3176069 Matrix: Water
Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.064	0.20	0.064	07/14/22 13:02	

LABORATORY CONTROL SAMPLE: 3176070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3176071 3176072

Parameter	Units	3176071		3176072		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60403818001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.064	5	5	4.6	4.6	92	92	75-125	1	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 795480 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3169145 Matrix: Water

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.82	5.0	0.82	07/11/22 11:26	
Beryllium	ug/L	0.29J	1.0	0.080	07/11/22 11:26	
Boron	ug/L	<7.6	100	7.6	07/11/22 11:26	
Calcium	ug/L	<26.5	200	26.5	07/11/22 11:26	
Cobalt	ug/L	<1.3	5.0	1.3	07/11/22 11:26	
Iron	ug/L	<7.4	50.0	7.4	07/11/22 11:26	
Lead	ug/L	<2.8	10.0	2.8	07/11/22 11:26	
Lithium	ug/L	<2.9	10.0	2.9	07/11/22 11:26	
Magnesium	ug/L	<24.1	50.0	24.1	07/11/22 11:26	
Manganese	ug/L	<0.38	5.0	0.38	07/11/22 11:26	
Molybdenum	ug/L	1.2J	20.0	0.91	07/11/22 11:26	
Potassium	ug/L	<90.1	500	90.1	07/11/22 11:26	
Sodium	ug/L	<38.8	500	38.8	07/11/22 11:26	

LABORATORY CONTROL SAMPLE: 3169146

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1120	112	85-115	
Beryllium	ug/L	1000	1150	115	85-115	
Boron	ug/L	1000	1070	107	85-115	
Calcium	ug/L	10000	10700	107	85-115	
Cobalt	ug/L	1000	1130	113	85-115	
Iron	ug/L	10000	11000	110	85-115	
Lead	ug/L	1000	1120	112	85-115	
Lithium	ug/L	1000	1120	112	85-115	
Magnesium	ug/L	10000	10500	105	85-115	
Manganese	ug/L	1000	1120	112	85-115	
Molybdenum	ug/L	1000	1100	110	85-115	
Potassium	ug/L	10000	10900	109	85-115	
Sodium	ug/L	10000	10900	109	85-115	

MATRIX SPIKE SAMPLE: 3169149

Parameter	Units	60404120002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L		125	1000	1150	103	70-130
Beryllium	ug/L		ND	1000	1040	104	70-130
Boron	ug/L		176	1000	1160	99	70-130

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

MATRIX SPIKE SAMPLE:		3169149		60404120002		Spike	MS	MS	% Rec		
Parameter	Units	Result	Conc.	Result	% Rec	Result	% Rec	Limits	Qualifiers		
Calcium	ug/L	74.6 mg/L	10000	81400	68	70-130	M1				
Cobalt	ug/L	ND	1000	993	99	70-130					
Iron	ug/L	ND	10000	10300	102	70-130					
Lead	ug/L	ND	1000	1040	104	70-130					
Lithium	ug/L	ND	1000	1040	103	70-130					
Magnesium	ug/L	31.4 mg/L	10000	40200	88	70-130					
Manganese	ug/L	ND	1000	1020	102	70-130					
Molybdenum	ug/L	ND	1000	1030	103	70-130					
Potassium	ug/L	8.8 mg/L	10000	18800	100	70-130					
Sodium	ug/L	76.8 mg/L	10000	84300	75	70-130					

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3169150		3169151		60403818001		MS	MSD	MS	MSD	% Rec	Max		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual			
Barium	ug/L	214	1000	1000	1350	1220	113	101	70-130	10	20				
Beryllium	ug/L	0.22J	1000	1000	1150	1050	115	105	70-130	10	20				
Boron	ug/L	96.3J	1000	1000	1190	1080	109	99	70-130	9	20				
Calcium	ug/L	138000	10000	10000	148000	139000	97	9	70-130	6	20	M1			
Cobalt	ug/L	<1.3	1000	1000	1120	997	112	100	70-130	11	20				
Iron	ug/L	10.9J	10000	10000	11000	10200	110	102	70-130	8	20				
Lead	ug/L	<2.8	1000	1000	1160	1040	116	104	70-130	10	20				
Lithium	ug/L	38.1	1000	1000	1190	1080	115	104	70-130	10	20				
Magnesium	ug/L	33100	10000	10000	44000	41100	109	80	70-130	7	20				
Manganese	ug/L	358	1000	1000	1530	1390	117	103	70-130	10	20				
Molybdenum	ug/L	5.0J	1000	1000	1170	1040	117	104	70-130	12	20				
Potassium	ug/L	6280	10000	10000	17700	16000	114	97	70-130	10	20				
Sodium	ug/L	4730	10000	10000	16000	14600	113	98	70-130	10	20				

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch:	794579	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3165566 Matrix: Water
Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	06/30/22 12:43	
Arsenic	ug/L	<0.14	1.0	0.14	06/30/22 12:43	
Cadmium	ug/L	<0.053	0.50	0.053	06/30/22 12:43	
Chromium	ug/L	<0.31	1.0	0.31	06/30/22 12:43	
Selenium	ug/L	<0.18	1.0	0.18	06/30/22 12:43	
Thallium	ug/L	<0.15	1.0	0.15	06/30/22 12:43	

LABORATORY CONTROL SAMPLE: 3165567

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.3	98	85-115	
Arsenic	ug/L	40	39.7	99	85-115	
Cadmium	ug/L	40	40.5	101	85-115	
Chromium	ug/L	40	40.6	101	85-115	
Selenium	ug/L	40	41.1	103	85-115	
Thallium	ug/L	40	38.8	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3165584 3165585

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Spike Conc.	Result	Spike Conc.	Result						
Antimony	ug/L	0.17J	40	40	38.0	37.7	95	94	70-130	1	20
Arsenic	ug/L	0.44J	40	40	37.9	37.8	94	94	70-130	0	20
Cadmium	ug/L	0.062J	40	40	37.3	37.2	93	93	70-130	0	20
Chromium	ug/L	0.50J	40	40	39.5	39.7	98	98	70-130	0	20
Selenium	ug/L	1.9	40	40	39.7	39.6	94	94	70-130	0	20
Thallium	ug/L	<0.15	40	40	39.7	39.2	99	98	70-130	1	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 795525

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3169295

Matrix: Water

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	07/01/22 15:36	

LABORATORY CONTROL SAMPLE: 3169296

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

SAMPLE DUPLICATE: 3169298

Parameter	Units	60403503001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	294	288	2	10	

SAMPLE DUPLICATE: 3169299

Parameter	Units	60403818001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	411	409	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 794559 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3165504 Matrix: Water
 Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/27/22 15:45	

LABORATORY CONTROL SAMPLE: 3165505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3165507

Parameter	Units	60403818001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	505	534	6	10	

SAMPLE DUPLICATE: 3165854

Parameter	Units	60403474001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	689	659	5	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 795226 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

METHOD BLANK: 3167850 Matrix: Water
 Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	06/30/22 11:57	
Fluoride	mg/L	<0.12	0.20	0.12	06/30/22 11:57	
Sulfate	mg/L	<0.55	1.0	0.55	06/30/22 11:57	

METHOD BLANK: 3171058 Matrix: Water
 Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	07/01/22 11:45	
Fluoride	mg/L	<0.12	0.20	0.12	07/01/22 11:45	
Sulfate	mg/L	<0.55	1.0	0.55	07/01/22 11:45	

LABORATORY CONTROL SAMPLE: 3167851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

LABORATORY CONTROL SAMPLE: 3171059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3167855 3167856

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60403654004 Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	12.4	5	5	18.0	18.1	111	112	80-120	0	15
Fluoride	mg/L	0.36	2.5	2.5	3.2	3.2	113	114	80-120	1	15
Sulfate	mg/L	10.9	5	5	16.2	16.2	106	108	80-120	0	15

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3167858 3167859

Parameter	Units	60403818001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Chloride	mg/L	2.7	5	5	7.5	7.5	95	96	80-120	0	15	
Fluoride	mg/L	0.46	2.5	2.5	3.1	3.1	105	106	80-120	1	15	
Sulfate	mg/L	42.9	50	50	90.7	90.0	96	94	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3167861 3167862

Parameter	Units	60403836001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Chloride	mg/L	22.8	5	5	28.4	28.5	111	113	80-120	0	15	E
Fluoride	mg/L	0.42	2.5	2.5	3.0	3.0	101	103	80-120	1	15	
Sulfate	mg/L	314	5	5	315	315	9	21	80-120	0	15	E,M1

SAMPLE DUPLICATE: 3167857

Parameter	Units	60403654004	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	12.4	12.5	0	15	
Fluoride	mg/L	0.36	0.34	5	15	
Sulfate	mg/L	10.9	10.8	0	15	

SAMPLE DUPLICATE: 3167860

Parameter	Units	60403818001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	2.7	2.8	3	15	
Fluoride	mg/L	0.46	0.46	2	15	
Sulfate	mg/L	42.9	44.0	3	15	

SAMPLE DUPLICATE: 3167863

Parameter	Units	60403836001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Chloride	mg/L	22.8	22.8	0	15	E
Fluoride	mg/L	0.42	0.43	2	15	
Sulfate	mg/L	314	314	0	15	E

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-4 **Lab ID: 60403818001** Collected: 06/20/22 10:23 Received: 06/23/22 03:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0482 ± 0.220 (0.518) C:NA T:91%	pCi/L	07/27/22 15:56	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	2.29 ± 0.865 (1.32) C:73% T:91%	pCi/L	07/21/22 20:31	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-5 **Lab ID: 60403818002** Collected: 06/20/22 11:44 Received: 06/23/22 03:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0493 ± 0.398 (0.781) C:NA T:90%	pCi/L	07/27/22 15:56	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.739 ± 0.642 (1.30) C:73% T:90%	pCi/L	07/21/22 20:31	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Sample: S-TMW-6 **Lab ID: 60403818003** Collected: 06/20/22 12:48 Received: 06/23/22 03:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.284 ± 0.415 (0.709) C:NA T:95%	pCi/L	07/27/22 16:16	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.958 ± 0.670 (1.30) C:73% T:95%	pCi/L	07/21/22 20:31	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-DUP-1 Lab ID: 60403818004 Collected: 06/20/22 00:00 Received: 06/23/22 03:47 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.129 ± 0.280 (0.516) C:NA T:91%	pCi/L	07/27/22 16:16	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.984 ± 0.763 (1.51) C:64% T:91%	pCi/L	07/21/22 20:31	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-FB-1 Lab ID: 60403818005 Collected: 06/20/22 12:58 Received: 06/23/22 03:47 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0397 ± 0.181 (0.108) C:NA T:94%	pCi/L	07/27/22 16:16	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.866 ± 0.649 (1.28) C:76% T:94%	pCi/L	07/21/22 20:32	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60403818006 Collected: 06/20/22 10:23 Received: 06/23/22 03:47 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	99.56 %REC ± NA (NA) C:NA T:NA	pCi/L	07/27/22 16:16	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	60.93 %REC ± NA (NA) C:NA T:NA	pCi/L	07/21/22 20:32	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	97.68 %REC 1.91RPD ± NA (NA) C:NA T:NA	pCi/L	07/27/22 16:16	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	55.64 %REC 9.08 RPD ± NA (NA) C:NA T:NA	pCi/L	07/21/22 20:32	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 516211

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005, 60403818006, 60403818007

METHOD BLANK: 2502059

Matrix: Water

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005, 60403818006, 60403818007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.397 ± 0.404 (0.831) C:71% T:88%	pCi/L	07/21/22 17:04	

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 - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

QC Batch: 516210

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005, 60403818006, 60403818007

METHOD BLANK: 2502058

Matrix: Water

Associated Lab Samples: 60403818001, 60403818002, 60403818003, 60403818004, 60403818005, 60403818006, 60403818007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0454 ± 0.207 (0.489) C:NA T:88%	pCi/L	07/27/22 15:56	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

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.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60403818

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60403818001	S-TMW-4	EPA 200.7	795480	EPA 200.7	795604
60403818002	S-TMW-5	EPA 200.7	795480	EPA 200.7	795604
60403818003	S-TMW-6	EPA 200.7	795480	EPA 200.7	795604
60403818004	S-SCPD-DUP-1	EPA 200.7	795480	EPA 200.7	795604
60403818005	S-SCPD-FB-1	EPA 200.7	795480	EPA 200.7	795604
60403818001	S-TMW-4	EPA 200.8	794579	EPA 200.8	794729
60403818002	S-TMW-5	EPA 200.8	794579	EPA 200.8	794729
60403818003	S-TMW-6	EPA 200.8	794579	EPA 200.8	794729
60403818004	S-SCPD-DUP-1	EPA 200.8	794579	EPA 200.8	794729
60403818005	S-SCPD-FB-1	EPA 200.8	794579	EPA 200.8	794729
60403818001	S-TMW-4	EPA 7470	797291	EPA 7470	797473
60403818002	S-TMW-5	EPA 7470	797291	EPA 7470	797473
60403818003	S-TMW-6	EPA 7470	797291	EPA 7470	797473
60403818004	S-SCPD-DUP-1	EPA 7470	797291	EPA 7470	797473
60403818005	S-SCPD-FB-1	EPA 7470	797291	EPA 7470	797473
60403818001	S-TMW-4	EPA 903.1	516210		
60403818002	S-TMW-5	EPA 903.1	516210		
60403818003	S-TMW-6	EPA 903.1	516210		
60403818004	S-SCPD-DUP-1	EPA 903.1	516210		
60403818005	S-SCPD-FB-1	EPA 903.1	516210		
60403818006	S-SCPD-MS-1	EPA 903.1	516210		
60403818007	S-SCPD-MSD-1	EPA 903.1	516210		
60403818001	S-TMW-4	EPA 904.0	516211		
60403818002	S-TMW-5	EPA 904.0	516211		
60403818003	S-TMW-6	EPA 904.0	516211		
60403818004	S-SCPD-DUP-1	EPA 904.0	516211		
60403818005	S-SCPD-FB-1	EPA 904.0	516211		
60403818006	S-SCPD-MS-1	EPA 904.0	516211		
60403818007	S-SCPD-MSD-1	EPA 904.0	516211		
60403818001	S-TMW-4	SM 2320B	795525		
60403818002	S-TMW-5	SM 2320B	795525		
60403818003	S-TMW-6	SM 2320B	795525		
60403818004	S-SCPD-DUP-1	SM 2320B	795525		
60403818005	S-SCPD-FB-1	SM 2320B	795525		
60403818001	S-TMW-4	SM 2540C	794559		
60403818002	S-TMW-5	SM 2540C	794559		
60403818003	S-TMW-6	SM 2540C	794559		
60403818004	S-SCPD-DUP-1	SM 2540C	794559		
60403818005	S-SCPD-FB-1	SM 2540C	794559		
60403818001	S-TMW-4	EPA 300.0	795226		
60403818002	S-TMW-5	EPA 300.0	795226		
60403818003	S-TMW-6	EPA 300.0	795226		
60403818004	S-SCPD-DUP-1	EPA 300.0	795226		
60403818005	S-SCPD-FB-1	EPA 300.0	795226		

REPORT OF LABORATORY ANALYSIS

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WO#: 60403818



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

Client Name: Golder Assoc.

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other zpic

Thermometer Used: T-299 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 1.5, 12.4 Corr. Factor -1.0 Corrected 0.5, 11.4

Date and initials of person examining contents: 6/25/22 RP

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: <u>55192</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

MEMORANDUM

DATE August 8, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL ann.muehlfarth@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #6 - DATA PACKAGE 60403818

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Laboratory: Pace Analytical

SDG #: 60403818

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>6/20/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>GTM</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max RPD: 6% [<10%]

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments/Notes:

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

Blanks:

3169145: Beryllium (0.29J), molybdenum (1.2J). Associated with samples -001 through -005. Sample results <RL and 10x blank qualified as non-detect estimate at the reporting limit. Non-detect results not qualified.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

S-SCPD-FB-1 @ S-TMW-6: Chromium (0.42J), alkalinity (8.8J). Results <RL and 10x blank qualified as non-detect estimate at the reporting limit. Results >RL and 10x blank not qualified.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: Cobalt and selenium detected in duplicate, ND in parent sample. RPD exceeds limit (20%) for chromium (34.0%).

MS/MSD:

3169149: MS % recovery low for calcium. MS performed on unrelated sample, no qualification necessary.

3169150/3169151: MSD % recovery low for calcium. Associated with sample -001. Only 1 QC indicator outside of control limits, no qualification necessary.

3167861/3167862: MS/MSD % recovery low for sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

August 09, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60405547

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on July 14, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60405547001	S-TMW-4	Water	07/13/22 14:39	07/14/22 04:21
60405547002	S-TMW-5	Water	07/13/22 13:32	07/14/22 04:21
60405547003	S-TMW-6	Water	07/13/22 12:19	07/14/22 04:21
60405547004	S-SCPD-DUP-1	Water	07/13/22 00:00	07/14/22 04:21
60405547005	S-SCPD-FB-1	Water	07/13/22 14:50	07/14/22 04:21
60405547006	S-SCPD-MS-1	Water	07/13/22 12:19	07/14/22 04:21
60405547007	S-SCPD-MSD-1	Water	07/13/22 12:19	07/14/22 04:21

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60405547001	S-TMW-4	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60405547002	S-TMW-5	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60405547003	S-TMW-6	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60405547004	S-SCPD-DUP-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60405547005	S-SCPD-FB-1	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	BLA	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60405547006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60405547007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-4 **Lab ID: 60405547001** Collected: 07/13/22 14:39 Received: 07/14/22 04:21 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	201	ug/L	5.0	0.82	1	07/19/22 11:30	08/01/22 14:39	7440-39-3	
Beryllium	0.18J	ug/L	1.0	0.080	1	07/19/22 11:30	08/01/22 14:39	7440-41-7	B
Boron	89.7J	ug/L	100	7.6	1	07/19/22 11:30	08/01/22 14:39	7440-42-8	
Calcium	129000	ug/L	200	26.5	1	07/19/22 11:30	08/01/22 14:39	7440-70-2	
Cobalt	1.4J	ug/L	5.0	1.3	1	07/19/22 11:30	08/01/22 14:39	7440-48-4	
Iron	12.9J	ug/L	50.0	7.4	1	07/19/22 11:30	08/01/22 14:39	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/19/22 11:30	08/01/22 14:39	7439-92-1	
Lithium	34.9	ug/L	10.0	2.9	1	07/19/22 11:30	08/01/22 14:39	7439-93-2	
Magnesium	30900	ug/L	50.0	24.1	1	07/19/22 11:30	08/01/22 14:39	7439-95-4	
Manganese	560	ug/L	5.0	0.38	1	07/19/22 11:30	08/01/22 14:39	7439-96-5	
Molybdenum	4.3J	ug/L	20.0	0.91	1	07/19/22 11:30	08/01/22 14:39	7439-98-7	
Potassium	5810	ug/L	500	90.1	1	07/19/22 11:30	08/01/22 14:39	7440-09-7	
Sodium	4470	ug/L	500	38.8	1	07/19/22 11:30	08/01/22 14:39	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	0.12	1	07/19/22 11:30	07/29/22 14:29	7440-36-0	
Arsenic	0.54J	ug/L	1.0	0.14	1	07/19/22 11:30	07/29/22 14:29	7440-38-2	
Cadmium	0.084J	ug/L	0.50	0.053	1	07/19/22 11:30	07/29/22 14:29	7440-43-9	B
Chromium	0.49J	ug/L	1.0	0.31	1	07/19/22 11:30	07/29/22 14:29	7440-47-3	
Selenium	4.6	ug/L	1.0	0.18	1	07/19/22 11:30	07/29/22 14:29	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/19/22 11:30	07/29/22 14:29	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/22/22 12:54	07/25/22 11:12	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	429	mg/L	20.0	4.6	1		07/27/22 13:13		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	518	mg/L	10.0	10.0	1		07/19/22 08:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	2.9	mg/L	1.0	0.53	1		07/25/22 13:16	16887-00-6	B
Fluoride	0.44	mg/L	0.20	0.12	1		07/25/22 13:16	16984-48-8	
Sulfate	39.5	mg/L	5.0	2.8	5		07/25/22 13:29	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-5 **Lab ID: 60405547002** Collected: 07/13/22 13:32 Received: 07/14/22 04:21 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	215	ug/L	5.0	0.82	1	07/19/22 11:30	08/01/22 14:41	7440-39-3	
Beryllium	0.15J	ug/L	1.0	0.080	1	07/19/22 11:30	08/01/22 14:41	7440-41-7	B
Boron	98.6J	ug/L	100	7.6	1	07/19/22 11:30	08/01/22 14:41	7440-42-8	
Calcium	132000	ug/L	200	26.5	1	07/19/22 11:30	08/01/22 14:41	7440-70-2	
Cobalt	3.1J	ug/L	5.0	1.3	1	07/19/22 11:30	08/01/22 14:41	7440-48-4	
Iron	105	ug/L	50.0	7.4	1	07/19/22 11:30	08/01/22 14:41	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/19/22 11:30	08/01/22 14:41	7439-92-1	
Lithium	34.5	ug/L	10.0	2.9	1	07/19/22 11:30	08/01/22 14:41	7439-93-2	
Magnesium	27500	ug/L	50.0	24.1	1	07/19/22 11:30	08/01/22 14:41	7439-95-4	
Manganese	477	ug/L	5.0	0.38	1	07/19/22 11:30	08/01/22 14:41	7439-96-5	
Molybdenum	2.8J	ug/L	20.0	0.91	1	07/19/22 11:30	08/01/22 14:41	7439-98-7	
Potassium	5490	ug/L	500	90.1	1	07/19/22 11:30	08/01/22 14:41	7440-09-7	
Sodium	4910	ug/L	500	38.8	1	07/19/22 11:30	08/01/22 14:41	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.25J	ug/L	1.0	0.12	1	07/19/22 11:30	07/29/22 14:32	7440-36-0	
Arsenic	0.50J	ug/L	1.0	0.14	1	07/19/22 11:30	07/29/22 14:32	7440-38-2	
Cadmium	0.11J	ug/L	0.50	0.053	1	07/19/22 11:30	07/29/22 14:32	7440-43-9	B
Chromium	0.84J	ug/L	1.0	0.31	1	07/19/22 11:30	07/29/22 14:32	7440-47-3	
Selenium	5.0	ug/L	1.0	0.18	1	07/19/22 11:30	07/29/22 14:32	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/19/22 11:30	07/29/22 14:32	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/22/22 12:54	07/25/22 11:14	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	421	mg/L	20.0	4.6	1		07/27/22 13:19		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	516	mg/L	10.0	10.0	1		07/19/22 08:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	1.9	mg/L	1.0	0.53	1		07/25/22 13:42	16887-00-6	B
Fluoride	0.45	mg/L	0.20	0.12	1		07/25/22 13:42	16984-48-8	
Sulfate	36.1	mg/L	5.0	2.8	5		07/25/22 13:54	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-6 **Lab ID: 60405547003** Collected: 07/13/22 12:19 Received: 07/14/22 04:21 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	241	ug/L	5.0	0.82	1	07/19/22 11:30	08/01/22 14:43	7440-39-3	
Beryllium	0.15J	ug/L	1.0	0.080	1	07/19/22 11:30	08/01/22 14:43	7440-41-7	B
Boron	106	ug/L	100	7.6	1	07/19/22 11:30	08/01/22 14:43	7440-42-8	
Calcium	157000	ug/L	200	26.5	1	07/19/22 11:30	08/01/22 14:43	7440-70-2	M1
Cobalt	<1.3	ug/L	5.0	1.3	1	07/19/22 11:30	08/01/22 14:43	7440-48-4	
Iron	<7.4	ug/L	50.0	7.4	1	07/19/22 11:30	08/01/22 14:43	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/19/22 11:30	08/01/22 14:43	7439-92-1	
Lithium	39.0	ug/L	10.0	2.9	1	07/19/22 11:30	08/01/22 14:43	7439-93-2	
Magnesium	31400	ug/L	50.0	24.1	1	07/19/22 11:30	08/01/22 14:43	7439-95-4	
Manganese	661	ug/L	5.0	0.38	1	07/19/22 11:30	08/01/22 14:43	7439-96-5	
Molybdenum	3.2J	ug/L	20.0	0.91	1	07/19/22 11:30	08/01/22 14:43	7439-98-7	
Potassium	8420	ug/L	500	90.1	1	07/19/22 11:30	08/01/22 14:43	7440-09-7	
Sodium	5350	ug/L	500	38.8	1	07/19/22 11:30	08/01/22 14:43	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.15J	ug/L	1.0	0.12	1	07/19/22 11:30	07/29/22 14:38	7440-36-0	
Arsenic	0.45J	ug/L	1.0	0.14	1	07/19/22 11:30	07/29/22 14:38	7440-38-2	
Cadmium	0.12J	ug/L	0.50	0.053	1	07/19/22 11:30	07/29/22 14:38	7440-43-9	B
Chromium	0.53J	ug/L	1.0	0.31	1	07/19/22 11:30	07/29/22 14:38	7440-47-3	
Selenium	3.4	ug/L	1.0	0.18	1	07/19/22 11:30	07/29/22 14:38	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/19/22 11:30	07/29/22 14:38	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/22/22 12:54	07/25/22 11:16	7439-97-6	R1
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	474	mg/L	20.0	4.6	1		07/27/22 13:25		D6
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	604	mg/L	10.0	10.0	1		07/19/22 08:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	4.8	mg/L	1.0	0.53	1		07/25/22 17:48	16887-00-6	B
Fluoride	<0.12	mg/L	0.20	0.12	1		07/25/22 17:48	16984-48-8	R1
Sulfate	40.8	mg/L	5.0	2.8	5		07/25/22 18:51	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-SCPD-DUP-1 **Lab ID: 60405547004** Collected: 07/13/22 00:00 Received: 07/14/22 04:21 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	203	ug/L	5.0	0.82	1	07/19/22 11:30	08/01/22 14:49	7440-39-3	
Beryllium	0.15J	ug/L	1.0	0.080	1	07/19/22 11:30	08/01/22 14:49	7440-41-7	B
Boron	94.0J	ug/L	100	7.6	1	07/19/22 11:30	08/01/22 14:49	7440-42-8	
Calcium	124000	ug/L	200	26.5	1	07/19/22 11:30	08/01/22 14:49	7440-70-2	
Cobalt	3.1J	ug/L	5.0	1.3	1	07/19/22 11:30	08/01/22 14:49	7440-48-4	
Iron	58.5	ug/L	50.0	7.4	1	07/19/22 11:30	08/01/22 14:49	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/19/22 11:30	08/01/22 14:49	7439-92-1	
Lithium	32.8	ug/L	10.0	2.9	1	07/19/22 11:30	08/01/22 14:49	7439-93-2	
Magnesium	25800	ug/L	50.0	24.1	1	07/19/22 11:30	08/01/22 14:49	7439-95-4	
Manganese	453	ug/L	5.0	0.38	1	07/19/22 11:30	08/01/22 14:49	7439-96-5	
Molybdenum	3.0J	ug/L	20.0	0.91	1	07/19/22 11:30	08/01/22 14:49	7439-98-7	
Potassium	5200	ug/L	500	90.1	1	07/19/22 11:30	08/01/22 14:49	7440-09-7	
Sodium	4670	ug/L	500	38.8	1	07/19/22 11:30	08/01/22 14:49	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.18J	ug/L	1.0	0.12	1	07/19/22 11:30	07/29/22 14:46	7440-36-0	
Arsenic	0.36J	ug/L	1.0	0.14	1	07/19/22 11:30	07/29/22 14:46	7440-38-2	
Cadmium	0.072J	ug/L	0.50	0.053	1	07/19/22 11:30	07/29/22 14:46	7440-43-9	B
Chromium	0.68J	ug/L	1.0	0.31	1	07/19/22 11:30	07/29/22 14:46	7440-47-3	
Selenium	4.4	ug/L	1.0	0.18	1	07/19/22 11:30	07/29/22 14:46	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/19/22 11:30	07/29/22 14:46	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/22/22 12:54	07/25/22 11:28	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	473	mg/L	20.0	4.6	1		07/27/22 13:54		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	217	mg/L	10.0	10.0	1		07/19/22 08:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	1.9	mg/L	1.0	0.53	1		07/25/22 19:28	16887-00-6	B
Fluoride	0.44	mg/L	0.20	0.12	1		07/25/22 19:28	16984-48-8	
Sulfate	36.0	mg/L	5.0	2.8	5		07/25/22 19:41	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-SCPD-FB-1 **Lab ID: 60405547005** Collected: 07/13/22 14:50 Received: 07/14/22 04:21 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	<0.82	ug/L	5.0	0.82	1	07/19/22 11:30	08/01/22 14:51	7440-39-3	
Beryllium	0.16J	ug/L	1.0	0.080	1	07/19/22 11:30	08/01/22 14:51	7440-41-7	B
Boron	<7.6	ug/L	100	7.6	1	07/19/22 11:30	08/01/22 14:51	7440-42-8	
Calcium	32.8J	ug/L	200	26.5	1	07/19/22 11:30	08/01/22 14:51	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	07/19/22 11:30	08/01/22 14:51	7440-48-4	
Iron	<7.4	ug/L	50.0	7.4	1	07/19/22 11:30	08/01/22 14:51	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/19/22 11:30	08/01/22 14:51	7439-92-1	
Lithium	<2.9	ug/L	10.0	2.9	1	07/19/22 11:30	08/01/22 14:51	7439-93-2	
Magnesium	<24.1	ug/L	50.0	24.1	1	07/19/22 11:30	08/01/22 14:51	7439-95-4	
Manganese	1.9J	ug/L	5.0	0.38	1	07/19/22 11:30	08/01/22 14:51	7439-96-5	
Molybdenum	<0.91	ug/L	20.0	0.91	1	07/19/22 11:30	08/01/22 14:51	7439-98-7	
Potassium	<90.1	ug/L	500	90.1	1	07/19/22 11:30	08/01/22 14:51	7440-09-7	
Sodium	<38.8	ug/L	500	38.8	1	07/19/22 11:30	08/01/22 14:51	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	07/19/22 11:30	07/29/22 14:49	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	07/19/22 11:30	07/29/22 14:49	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	07/19/22 11:30	07/29/22 14:49	7440-43-9	
Chromium	0.74J	ug/L	1.0	0.31	1	07/19/22 11:30	07/29/22 14:49	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	07/19/22 11:30	07/29/22 14:49	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/19/22 11:30	07/29/22 14:49	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	07/22/22 12:54	07/25/22 11:30	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	8.2J	mg/L	20.0	4.6	1		07/27/22 14:01		B
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Kansas City									
Total Dissolved Solids	29.0	mg/L	5.0	5.0	1		07/19/22 08:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City									
Chloride	0.63J	mg/L	1.0	0.53	1		07/25/22 19:54	16887-00-6	B
Fluoride	<0.12	mg/L	0.20	0.12	1		07/25/22 19:54	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		07/25/22 19:54	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch:	799006	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3182211 Matrix: Water
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	0.069J	0.20	0.064	07/25/22 11:01	

LABORATORY CONTROL SAMPLE: 3182212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.7	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3182213 3182214

Parameter	Units	60405547003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.064	5	5	6.1	4.3	121	85	75-125	34	20	R1

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch:	798253	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3179342 Matrix: Water

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.82	5.0	0.82	08/01/22 14:34	
Beryllium	ug/L	0.14J	1.0	0.080	08/01/22 14:34	
Boron	ug/L	<7.6	100	7.6	08/01/22 14:34	
Calcium	ug/L	<26.5	200	26.5	08/01/22 14:34	
Cobalt	ug/L	<1.3	5.0	1.3	08/01/22 14:34	
Iron	ug/L	<7.4	50.0	7.4	08/01/22 14:34	
Lead	ug/L	<2.8	10.0	2.8	08/01/22 14:34	
Lithium	ug/L	<2.9	10.0	2.9	08/01/22 14:34	
Magnesium	ug/L	<24.1	50.0	24.1	08/01/22 14:34	
Manganese	ug/L	<0.38	5.0	0.38	08/01/22 14:34	
Molybdenum	ug/L	<0.91	20.0	0.91	08/01/22 14:34	
Potassium	ug/L	<90.1	500	90.1	08/01/22 14:34	
Sodium	ug/L	<38.8	500	38.8	08/01/22 14:34	

LABORATORY CONTROL SAMPLE: 3179343

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1030	103	85-115	
Beryllium	ug/L	1000	1050	105	85-115	
Boron	ug/L	1000	946	95	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Iron	ug/L	10000	9780	98	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	989	99	85-115	
Magnesium	ug/L	10000	9620	96	85-115	
Manganese	ug/L	1000	1040	104	85-115	
Molybdenum	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	9510	95	85-115	
Sodium	ug/L	10000	9920	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3179344 3179345

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60405547003	Result	Spike Conc.	Spike Conc.						
Barium	ug/L	241	1000	1000	1260	1230	101	99	70-130	2	20
Beryllium	ug/L	0.15J	1000	1000	1030	990	103	99	70-130	4	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameter	Units	3179344		3179345		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60405547003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Boron	ug/L	106	1000	1000	1050	1040	95	93	70-130	2	20		
Calcium	ug/L	157000	10000	10000	162000	161000	55	39	70-130	1	20	M1	
Cobalt	ug/L	<1.3	1000	1000	1010	959	100	96	70-130	5	20		
Iron	ug/L	<7.4	10000	10000	9740	9420	97	94	70-130	3	20		
Lead	ug/L	<2.8	1000	1000	1050	1000	105	100	70-130	5	20		
Lithium	ug/L	39.0	1000	1000	1060	1040	102	100	70-130	2	20		
Magnesium	ug/L	31400	10000	10000	40200	39900	89	85	70-130	1	20		
Manganese	ug/L	661	1000	1000	1680	1620	102	96	70-130	4	20		
Molybdenum	ug/L	3.2J	1000	1000	1020	976	102	97	70-130	5	20		
Potassium	ug/L	8420	10000	10000	18200	18100	98	97	70-130	1	20		
Sodium	ug/L	5350	10000	10000	15400	15100	100	98	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch: 798254

Analysis Method: EPA 200.8

QC Batch Method: EPA 200.8

Analysis Description: 200.8 MET

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3179346

Matrix: Water

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	07/29/22 14:25	
Arsenic	ug/L	<0.14	1.0	0.14	07/29/22 14:25	
Cadmium	ug/L	0.059J	0.50	0.053	07/29/22 14:25	
Chromium	ug/L	<0.31	1.0	0.31	07/29/22 14:25	
Selenium	ug/L	<0.18	1.0	0.18	07/29/22 14:25	
Thallium	ug/L	<0.15	1.0	0.15	07/29/22 14:25	

LABORATORY CONTROL SAMPLE: 3179347

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.2	100	85-115	
Arsenic	ug/L	40	39.9	100	85-115	
Cadmium	ug/L	40	41.4	103	85-115	
Chromium	ug/L	40	41.3	103	85-115	
Selenium	ug/L	40	42.4	106	85-115	
Thallium	ug/L	40	39.3	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3179348 3179349

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		60405547003	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	ug/L	0.15J	40	40	40.3	40.2	100	100	70-130	0	20		
Arsenic	ug/L	0.45J	40	40	40.5	40.0	100	99	70-130	1	20		
Cadmium	ug/L	0.12J	40	40	39.9	39.6	99	99	70-130	1	20		
Chromium	ug/L	0.53J	40	40	40.7	40.5	100	100	70-130	0	20		
Selenium	ug/L	3.4	40	40	43.8	44.0	101	101	70-130	0	20		
Thallium	ug/L	<0.15	40	40	41.0	40.8	102	102	70-130	1	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch:	799664	Analysis Method:	SM 2320B
QC Batch Method:	SM 2320B	Analysis Description:	2320B Alkalinity
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3184313 Matrix: Water
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	8.0J	20.0	4.6	07/27/22 12:55	

LABORATORY CONTROL SAMPLE: 3184314

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

SAMPLE DUPLICATE: 3184315

Parameter	Units	60405547003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	474	420	12	10	D6

SAMPLE DUPLICATE: 3184316

Parameter	Units	60405555023 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	292	296	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60405547

QC Batch: 798256 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3179354 Matrix: Water
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/19/22 08:58	

LABORATORY CONTROL SAMPLE: 3179355

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3179356

Parameter	Units	60405547003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	604	607	0	10	

SAMPLE DUPLICATE: 3179357

Parameter	Units	60405555002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2210	2700	20	10	D6

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60405547

QC Batch: 799173 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

METHOD BLANK: 3182961 Matrix: Water
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.53	1.0	0.53	07/25/22 10:07	
Fluoride	mg/L	<0.12	0.20	0.12	07/25/22 10:07	
Sulfate	mg/L	<0.55	1.0	0.55	07/25/22 10:07	

METHOD BLANK: 3188529 Matrix: Water
Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.64J	1.0	0.53	08/02/22 15:45	
Fluoride	mg/L	<0.12	0.20	0.12	08/02/22 15:45	
Sulfate	mg/L	<0.55	1.0	0.55	08/02/22 15:45	

LABORATORY CONTROL SAMPLE: 3182962

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	2.4	95	90-110	
Sulfate	mg/L	5	4.6	92	90-110	

LABORATORY CONTROL SAMPLE: 3188530

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	100	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE SAMPLE: 3182963

Parameter	Units	60406237007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.9	10	11.4	85	80-120	
Fluoride	mg/L	2.8	5	7.8	100	80-120	
Sulfate	mg/L	554	500	1050	98	80-120	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameter	Units	3182964		3182965		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60405547003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Chloride	mg/L	4.8	5	5	10.7	9.7	119	98	80-120	10	15		
Fluoride	mg/L	<0.12	2.5	2.5	3.0	2.5	114	96	80-120	17	15	R1	
Sulfate	mg/L	40.8	25	25	64.9	66.7	97	104	80-120	3	15		

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-4 **Lab ID: 60405547001** Collected: 07/13/22 14:39 Received: 07/14/22 04:21 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.206 ± 0.353 (0.620) C:NA T:89%	pCi/L	08/09/22 10:42	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.250 ± 0.509 (1.12) C:75% T:89%	pCi/L	08/02/22 20:30	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-5 **Lab ID: 60405547002** Collected: 07/13/22 13:32 Received: 07/14/22 04:21 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.305 ± 0.286 (0.405) C:NA T:88%	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.14 ± 0.639 (1.12) C:71% T:88%	pCi/L	08/02/22 20:30	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Sample: S-TMW-6 **Lab ID: 60405547003** Collected: 07/13/22 12:19 Received: 07/14/22 04:21 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	1.05 ± 0.471 (0.407) C:NA T:86%	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.22 ± 0.728 (1.33) C:68% T:86%	pCi/L	08/02/22 20:30	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-DUP-1 Lab ID: 60405547004 Collected: 07/13/22 00:00 Received: 07/14/22 04:21 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.470 ± 0.395 (0.565) C:NA T:83%	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	1.23 ± 0.819 (1.58) C:71% T:83%	pCi/L	08/02/22 20:33	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-FB-1 Lab ID: 60405547005 Collected: 07/13/22 14:50 Received: 07/14/22 04:21 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.653 ± 0.399 (0.490) C:NA T:87%	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.363 ± 0.634 (1.38) C:69% T:87%	pCi/L	08/02/22 20:34	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60405547006 Collected: 07/13/22 12:19 Received: 07/14/22 04:21 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	86.65 %REC ± NA (NA) C:NA T:NA	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	93.05 %REC ± NA (NA) C:NA T:NA%	pCi/L	08/02/22 20:34	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	77.88 %REC 10.66RPD ± NA (NA) C:NA T:NA	pCi/L	08/09/22 11:25	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	51.91 %REC 56.76 RPD ± NA (NA) C:NA T:NA%	pCi/L	08/02/22 20:32	15262-20-1	1e

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch: 520007

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005, 60405547006, 60405547007

METHOD BLANK: 2520955

Matrix: Water

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005, 60405547006, 60405547007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0905 ± 0.281 (0.638) C:NA T:85%	pCi/L	08/09/22 10:42	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

QC Batch: 520013

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005, 60405547006, 60405547007

METHOD BLANK: 2520962

Matrix: Water

Associated Lab Samples: 60405547001, 60405547002, 60405547003, 60405547004, 60405547005, 60405547006, 60405547007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.287 ± 0.377 (0.804) C:75% T:85%	pCi/L	08/02/22 16:24	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

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

1e The Matrix Spike Duplicate recovery was low and outside of the default acceptance criteria for MS recovery. Results have been reported based on an acceptable duplicate numerical indicator of <3.0 for the RQS pair.

B Analyte was detected in the associated method blank.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60405547

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60405547001	S-TMW-4	EPA 200.7	798253	EPA 200.7	798401
60405547002	S-TMW-5	EPA 200.7	798253	EPA 200.7	798401
60405547003	S-TMW-6	EPA 200.7	798253	EPA 200.7	798401
60405547004	S-SCPD-DUP-1	EPA 200.7	798253	EPA 200.7	798401
60405547005	S-SCPD-FB-1	EPA 200.7	798253	EPA 200.7	798401
60405547001	S-TMW-4	EPA 200.8	798254	EPA 200.8	798402
60405547002	S-TMW-5	EPA 200.8	798254	EPA 200.8	798402
60405547003	S-TMW-6	EPA 200.8	798254	EPA 200.8	798402
60405547004	S-SCPD-DUP-1	EPA 200.8	798254	EPA 200.8	798402
60405547005	S-SCPD-FB-1	EPA 200.8	798254	EPA 200.8	798402
60405547001	S-TMW-4	EPA 7470	799006	EPA 7470	799229
60405547002	S-TMW-5	EPA 7470	799006	EPA 7470	799229
60405547003	S-TMW-6	EPA 7470	799006	EPA 7470	799229
60405547004	S-SCPD-DUP-1	EPA 7470	799006	EPA 7470	799229
60405547005	S-SCPD-FB-1	EPA 7470	799006	EPA 7470	799229
60405547001	S-TMW-4	EPA 903.1	520007		
60405547002	S-TMW-5	EPA 903.1	520007		
60405547003	S-TMW-6	EPA 903.1	520007		
60405547004	S-SCPD-DUP-1	EPA 903.1	520007		
60405547005	S-SCPD-FB-1	EPA 903.1	520007		
60405547006	S-SCPD-MS-1	EPA 903.1	520007		
60405547007	S-SCPD-MSD-1	EPA 903.1	520007		
60405547001	S-TMW-4	EPA 904.0	520013		
60405547002	S-TMW-5	EPA 904.0	520013		
60405547003	S-TMW-6	EPA 904.0	520013		
60405547004	S-SCPD-DUP-1	EPA 904.0	520013		
60405547005	S-SCPD-FB-1	EPA 904.0	520013		
60405547006	S-SCPD-MS-1	EPA 904.0	520013		
60405547007	S-SCPD-MSD-1	EPA 904.0	520013		
60405547001	S-TMW-4	SM 2320B	799664		
60405547002	S-TMW-5	SM 2320B	799664		
60405547003	S-TMW-6	SM 2320B	799664		
60405547004	S-SCPD-DUP-1	SM 2320B	799664		
60405547005	S-SCPD-FB-1	SM 2320B	799664		
60405547001	S-TMW-4	SM 2540C	798256		
60405547002	S-TMW-5	SM 2540C	798256		
60405547003	S-TMW-6	SM 2540C	798256		
60405547004	S-SCPD-DUP-1	SM 2540C	798256		
60405547005	S-SCPD-FB-1	SM 2540C	798256		
60405547001	S-TMW-4	EPA 300.0	799173		
60405547002	S-TMW-5	EPA 300.0	799173		
60405547003	S-TMW-6	EPA 300.0	799173		
60405547004	S-SCPD-DUP-1	EPA 300.0	799173		
60405547005	S-SCPD-FB-1	EPA 300.0	799173		

REPORT OF LABORATORY ANALYSIS

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WO#: 60405547



DC#_Title: ENV-FRM-LENE-0009_Sample



Revision: 2

Effective Date: 01/12/2022

Issued By: Lenexa

Client Name: Colder

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other Ziploc

Thermometer Used: T301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 15.8 Corr. Factor -1.0 Corrected 14.8
Temperature should be above freezing to 6°C 1.4 0.4

Date and initials of person examining contents: 07.14.2022

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>cooler out of temp had</u>
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>only Radium</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

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

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

Section B
 Required Project Information:
 Report To: Jeffrey Ingram
 Copy To: Eric Schneider, Ryan Feldman, Brendan Talbert
 Purchase Order No.: COC #12
 Project Name: Ameren Sioux Energy Center SCPD
 Project Number: 153140604.0003B

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

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location: MO
 STATE: MO

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOILSOLID SL OIL OIL WP AR OT TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME		
1	S-UG-2	6TT	7-13-22	1434	G	WT	1				
2	S-TMW-4		7-13-22	1332	G	WT	1				
3	S-TMW-5				G	WT	1				
4	S-TMW-6				G	WT	1				
5	S-SCPD-DUP-1				G	WT	1				
6	S-SCPD-FB-1				G	WT	1				
7	S-SCPD-MS-1				G	WT	1				
8	S-SCPD-MSD-1				G	WT	1				
9	S-BMW-TS				G	WT	1				
10	S-BMAL-3S				G	WT	1				
11	6TT				G	WT	1				
12					G	WT	1				

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	7-13-22	1540	Angela Moman	7-13	1540	
**App IV Metals - EPA 200.7: Ba, Be, Co, Pb, Li, Mo EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Angela Moman	7-13	1540	Angela Moman	7-14-22	6421	Received on Ice (Y/N) 148 N Cooler Sealed (Y/N) Y Custody Sealed (Y/N) Y Samples Inlact (Y/N) Y

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Brendan Talbert
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed (MM/DD/YYYY): 07/13/22

Internal Transfer Chain of Custody



Samples Pre-Logged into eCOC.

Cert. Needed: Yes No

Workorder: 60405547 Workorder Name: AMEREN SIOUX ENERGY CENTER SOBWRNER Received Date: 7/14/2022 Results Requested By: 7/28/2022

Report To: Subcontract To: Requested Analysis

Jamie Church
Pace Analytical Kansas
9608 Loiret Blvd.
Lenexa, KS 66219
Phone 314-838-7223

Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						HNO3		
1	S-TMW-4	PS	7/13/2022 14:39	60405547001	Water	2		001
2	S-TMW-5	PS	7/13/2022 13:32	60405547002	Water	2		002
3	S-TMW-6	RQS	7/13/2022 12:19	60405547003	Water	2		003
4	S-SCPD-DUP-1	PS	7/13/2022 00:00	60405547004	Water	2		004
5	S-SCPD-FB-1	PS	7/13/2022 14:50	60405547005	Water	2		005
6	S-SCPD-MS-1	RQS	7/13/2022 12:19	60405547006	Water	2		006
7	S-SCPD-MSD-1	RQS	7/13/2022 12:19	60405547007	Water	2		007

Radium 226
Radium 228

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	<i>[Signature]</i>	7/18/22 5:00	<i>[Signature]</i>	7-19-22 15:00				
2								
3								

Cooler Temperature on Receipt: 5 °C Custody Seal: Y or N Received on Ice: Y or N Samples Intact: Y or N

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

WO#: 30506898
30506898



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace - KS Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 5767 1406 3134

Label	<u>PS</u>
LIMS Login	<u>VP</u>

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used _____ Type of ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>PS 7/20/22</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>PH = 2</u>
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>PS</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>PS</u> Date: <u>7/20/22</u> Survey Meter SN: <u>1563</u>

WO#: 30506898
 Due Date: 08/16/22
 PM: CF1
 CLIENT: PACE_60_LEKS

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

MEMORANDUM

DATE August 10, 2022

Project No. 153140604.0003

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL ann.muehlfarth@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #7 - DATA PACKAGE 60405547

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

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When 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 USA Inc
 Project Name: Ameren - SEC - SCPD
 Reviewer: A. Muehlfarth

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 8/10/2022

Laboratory: Pace Analytical

SDG #: 60405547

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste _____

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7/13/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>BTT</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See Notes</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

Comments/Notes:

Some coolers received outside of temperature, only contained radium.

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

Blanks:

3182211: Mercury (0.069J), associated with samples -001 through -005. Sample results ND, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

3179342: Beryllium (0.14J), associated with samples -001 through -005. Results <RL reported at RL and qualified ND.

3179346: Cadmium (0.059J), associated with samples -001 through -005. Results <RL reported at RL and qualified ND. ND results not qualified.

3184313: Alkalinity (8.0J), associated with samples -001 through -005. Results >RL and 10x blank not qualified. Results <RL reported at RL and qualified ND.

3188529: Chloride (0.64J), associated with samples -001 through -005. Results >RL but <10x blank qualified as estimates. Results <RL reported at RL and qualified ND.

S-SCPD-FB-1 @ S-TMW-4: Beryllium (0.16J), calcium (32.8J), manganese (1.9J), chromium (0.74J), alkalinity (8.2J), TDS (29.0), chloride (0.63J), and radium-226 (0.653 ± 0.399). Results <RL reported at RL and qualified ND. Results >10x blank were not qualified. Results >RL but <10x blank qualified as estimates.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-5: RPD exceeds limit (20%) for iron (56.9%), antimony (32.6%), arsenic (32.6%), cadmium (41.8%), chromium (21.1%), TDS (81.6%), radium-228 ND in duplicate, detected in parent sample.

3184315: Dup RPD exceeds limit (10%) for alkalinity (12%). Associated with sample -003.

3179357: Dup RPD exceeds limit (10%) for TDS (20%). Associated with unrelated sample, no qualification necessary.

MS/MSD: TMW-6

3182213/3182214: RPD exceeds limit (20%) for mercury (34%). Associated with sample -003. Only 1 QC indicator outside control limits, no qualification necessary.

3179344/3179345: MS/MSD % recovery low for calcium. Associated with sample -003.

3182964/3182965: RPD exceeds limit (15%) for fluoride (17%). 60405547003 Only 1 QC indicator outside control limits, no qualification necessary.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-TMW-4	Beryllium	1.0	UJ	Detected in MB/FB, RL > result
"	Chromium	1.0	UJ	"
"	Chloride	2.9	J	Detected in FB, 10x blank > result > RL
"	Cadmium	0.50	UJ	Detected in MB, RL > result
S-TMW-5	Beryllium	1.0	UJ	"
S-TMW-6	Beryllium	1.0	UJ	"
"	Cadmium	0.50	UJ	"
S-SCPD-DUP-1	Beryllium	1.0	UJ	"
S-SCPD-FB-1	Beryllium	1.0	UJ	"
"	Alkalinity	20.0	UJ	"
"	Chloride	1.0	UJ	"
S-TMW-4	Chloride	2.9	J	Detected in MB, 10x blank > result > RL
S-TMW-5	Chloride	1.9	J	"
S-TMW-6	Chloride	4.8	J	"
S-SCPD-DUP-1	Chloride	1.9	J	"
S-TMW-5	Iron	105	J	Dup RPD exceeds limit
"	Antimony	0.25	J	"
"	Arsenic	0.50	J	"
"	Chromium	0.84	J	"
"	TDS	516	J	"
"	Radium-228	1.14 ± 0.639	J	Detected in parent sample, ND in dup
"	Cadmium	0.50	UJ	Detected in MB, RL > result; Dup RPD exceeds limit
S-SCPD-DUP-1	Iron	58.5	J	Dup RPD exceeds limit
"	Antimony	0.18	J	"
"	Arsenic	0.36	J	"
"	Chromium	0.68	J	"
"	TDS	217	J	"
"	Radium-228	1.23 ± 0.819	UJ	Detected in parent sample, ND in dup
"	Cadmium	0.50	UJ	Detected in MB, RL > result; Dup RPD exceeds limit
S-TMW-6	Alkalinity	474	J	Lab sample dup RPD exceeds limit
"	Calcium	157000	J-	MS/MSD % recovery low

August 25, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60406477

Dear Jeffrey Ingram:

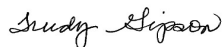
Enclosed are the analytical results for sample(s) received by the laboratory on July 27, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- Pace Analytical Services - Greensburg

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

Sincerely,



Trudy Gipson for
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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

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 #: 460198

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 Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60406477001	S-TMW-4	Water	07/25/22 15:21	07/27/22 03:41
60406477002	S-TMW-5	Water	07/25/22 14:07	07/27/22 03:41
60406477003	S-TMW-6	Water	07/25/22 12:40	07/27/22 03:41
60406477004	S-SCPD-DUP-1	Water	07/25/22 08:00	07/27/22 03:41
60406477005	S-SCPD-FB-1	Water	07/25/22 15:45	07/27/22 03:41
60406477006	S-SCPD-MS-1	Water	07/25/22 12:40	07/27/22 03:41
60406477007	S-SCPD-MSD-1	Water	07/25/22 12:40	07/27/22 03:41

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60406477001	S-TMW-4	EPA 200.7	MA1	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	KLM	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
		60406477002	S-TMW-5	EPA 200.7	MA1
EPA 200.8	JGP			6	PASI-K
EPA 7470	ALH			1	PASI-K
EPA 903.1	SLC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
SM 2320B	BLA			1	PASI-K
SM 2540C	KLM			1	PASI-K
EPA 300.0	CRN2			3	PASI-K
60406477003	S-TMW-6			EPA 200.7	MA1
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	KLM	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
		60406477004	S-SCPD-DUP-1	EPA 200.7	MA1
EPA 200.8	JGP			6	PASI-K
EPA 7470	ALH			1	PASI-K
EPA 903.1	SLC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
SM 2320B	BLA			1	PASI-K
SM 2540C	KLM			1	PASI-K
EPA 300.0	CRN2			3	PASI-K
60406477005	S-SCPD-FB-1			EPA 200.7	MA1
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ALH	1	PASI-K
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	BLA	1	PASI-K
		SM 2540C	KLM	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60406477006	S-SCPD-MS-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60406477007	S-SCPD-MSD-1	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-K = Pace Analytical Services - Kansas City

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-TMW-4 **Lab ID: 60406477001** Collected: 07/25/22 15:21 Received: 07/27/22 03:41 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	193	ug/L	5.0	0.82	1	07/28/22 08:11	08/05/22 13:15	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/28/22 08:11	08/05/22 13:15	7440-41-7	
Boron	95.3J	ug/L	100	7.6	1	07/28/22 08:11	08/05/22 13:15	7440-42-8	
Calcium	131000	ug/L	200	26.5	1	07/28/22 08:11	08/05/22 13:15	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	07/28/22 08:11	08/05/22 13:15	7440-48-4	
Iron	<7.4	ug/L	50.0	7.4	1	07/28/22 08:11	08/05/22 13:15	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/28/22 08:11	08/05/22 13:15	7439-92-1	
Lithium	36.6	ug/L	10.0	2.9	1	07/28/22 08:11	08/05/22 13:15	7439-93-2	
Magnesium	32400	ug/L	50.0	24.1	1	07/28/22 08:11	08/05/22 13:15	7439-95-4	
Manganese	547	ug/L	5.0	0.38	1	07/28/22 08:11	08/05/22 13:15	7439-96-5	
Molybdenum	4.0J	ug/L	20.0	0.91	1	07/28/22 08:11	08/05/22 13:15	7439-98-7	
Potassium	6100	ug/L	500	90.1	1	07/28/22 08:11	08/05/22 13:15	7440-09-7	
Sodium	4870	ug/L	500	38.8	1	07/28/22 08:11	08/05/22 13:15	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.23J	ug/L	1.0	0.12	1	07/28/22 08:11	07/29/22 16:14	7440-36-0	
Arsenic	0.56J	ug/L	1.0	0.14	1	07/28/22 08:11	07/29/22 16:14	7440-38-2	
Cadmium	0.076J	ug/L	0.50	0.053	1	07/28/22 08:11	07/29/22 16:14	7440-43-9	
Chromium	0.51J	ug/L	1.0	0.31	1	07/28/22 08:11	07/29/22 16:14	7440-47-3	
Selenium	7.0	ug/L	1.0	0.18	1	07/28/22 08:11	07/29/22 16:14	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/28/22 08:11	07/29/22 16:14	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	08/01/22 11:19	08/02/22 10:55	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	429	mg/L	20.0	4.6	1		08/08/22 14:26		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	548	mg/L	10.0	10.0	1		08/01/22 11:32		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	3.1	mg/L	1.0	0.53	1		08/06/22 18:13	16887-00-6	B
Fluoride	0.43	mg/L	0.20	0.12	1		08/06/22 18:13	16984-48-8	
Sulfate	39.3	mg/L	10.0	5.5	10		08/06/22 18:26	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-TMW-5 **Lab ID: 60406477002** Collected: 07/25/22 14:07 Received: 07/27/22 03:41 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	207	ug/L	5.0	0.82	1	07/28/22 08:11	08/05/22 13:17	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/28/22 08:11	08/05/22 13:17	7440-41-7	
Boron	102	ug/L	100	7.6	1	07/28/22 08:11	08/05/22 13:17	7440-42-8	
Calcium	138000	ug/L	200	26.5	1	07/28/22 08:11	08/05/22 13:17	7440-70-2	
Cobalt	3.1J	ug/L	5.0	1.3	1	07/28/22 08:11	08/05/22 13:17	7440-48-4	
Iron	34.8J	ug/L	50.0	7.4	1	07/28/22 08:11	08/05/22 13:17	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/28/22 08:11	08/05/22 13:17	7439-92-1	
Lithium	35.3	ug/L	10.0	2.9	1	07/28/22 08:11	08/05/22 13:17	7439-93-2	
Magnesium	31800	ug/L	50.0	24.1	1	07/28/22 08:11	08/05/22 13:17	7439-95-4	
Manganese	418	ug/L	5.0	0.38	1	07/28/22 08:11	08/05/22 13:17	7439-96-5	
Molybdenum	2.1J	ug/L	20.0	0.91	1	07/28/22 08:11	08/05/22 13:17	7439-98-7	
Potassium	5760	ug/L	500	90.1	1	07/28/22 08:11	08/05/22 13:17	7440-09-7	
Sodium	5090	ug/L	500	38.8	1	07/28/22 08:11	08/05/22 13:17	7440-23-5	
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	0.17J	ug/L	1.0	0.12	1	07/28/22 08:11	07/29/22 16:17	7440-36-0	
Arsenic	0.37J	ug/L	1.0	0.14	1	07/28/22 08:11	07/29/22 16:17	7440-38-2	
Cadmium	0.084J	ug/L	0.50	0.053	1	07/28/22 08:11	07/29/22 16:17	7440-43-9	
Chromium	0.53J	ug/L	1.0	0.31	1	07/28/22 08:11	07/29/22 16:17	7440-47-3	
Selenium	4.5	ug/L	1.0	0.18	1	07/28/22 08:11	07/29/22 16:17	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/28/22 08:11	07/29/22 16:17	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	08/01/22 11:19	08/02/22 10:57	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	428	mg/L	20.0	4.6	1		08/08/22 14:32		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	545	mg/L	10.0	10.0	1		08/01/22 11:32		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	1.9	mg/L	1.0	0.53	1		08/06/22 18:38	16887-00-6	B
Fluoride	0.22	mg/L	0.20	0.12	1		08/06/22 18:38	16984-48-8	
Sulfate	34.9	mg/L	5.0	2.8	5		08/06/22 18:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-TMW-6 **Lab ID: 60406477003** Collected: 07/25/22 12:40 Received: 07/27/22 03:41 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	249	ug/L	5.0	0.82	1	07/28/22 08:11	08/05/22 13:26	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/28/22 08:11	08/05/22 13:26	7440-41-7	
Boron	119	ug/L	100	7.6	1	07/28/22 08:11	08/05/22 13:26	7440-42-8	
Calcium	152000	ug/L	200	26.5	1	07/28/22 08:11	08/05/22 13:26	7440-70-2	M1
Cobalt	<1.3	ug/L	5.0	1.3	1	07/28/22 08:11	08/05/22 13:26	7440-48-4	
Iron	11.2J	ug/L	50.0	7.4	1	07/28/22 08:11	08/05/22 13:26	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/28/22 08:11	08/05/22 13:26	7439-92-1	
Lithium	37.4	ug/L	10.0	2.9	1	07/28/22 08:11	08/05/22 13:26	7439-93-2	
Magnesium	31300	ug/L	50.0	24.1	1	07/28/22 08:11	08/05/22 13:26	7439-95-4	
Manganese	506	ug/L	5.0	0.38	1	07/28/22 08:11	08/05/22 13:26	7439-96-5	
Molybdenum	3.2J	ug/L	20.0	0.91	1	07/28/22 08:11	08/05/22 13:26	7439-98-7	
Potassium	14400	ug/L	500	90.1	1	07/28/22 08:11	08/05/22 13:26	7440-09-7	
Sodium	6050	ug/L	500	38.8	1	07/28/22 08:11	08/05/22 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	0.16J	ug/L	1.0	0.12	1	07/28/22 08:11	07/29/22 16:22	7440-36-0	
Arsenic	0.47J	ug/L	1.0	0.14	1	07/28/22 08:11	07/29/22 16:22	7440-38-2	
Cadmium	0.087J	ug/L	0.50	0.053	1	07/28/22 08:11	07/29/22 16:22	7440-43-9	
Chromium	0.67J	ug/L	1.0	0.31	1	07/28/22 08:11	07/29/22 16:22	7440-47-3	
Selenium	4.8	ug/L	1.0	0.18	1	07/28/22 08:11	07/29/22 16:22	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/28/22 08:11	07/29/22 16:22	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	08/01/22 11:19	08/02/22 11:00	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	449	mg/L	20.0	4.6	1		08/08/22 14:39		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	694	mg/L	10.0	10.0	1		08/01/22 11:32		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	3.2	mg/L	1.0	0.53	1		08/05/22 20:08	16887-00-6	B
Fluoride	0.18J	mg/L	0.20	0.12	1		08/05/22 20:08	16984-48-8	
Sulfate	35.3	mg/L	10.0	5.5	10		08/05/22 20:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-SCPD-DUP-1 **Lab ID: 60406477004** Collected: 07/25/22 08:00 Received: 07/27/22 03:41 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	207	ug/L	5.0	0.82	1	07/28/22 08:11	08/05/22 13:32	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/28/22 08:11	08/05/22 13:32	7440-41-7	
Boron	102	ug/L	100	7.6	1	07/28/22 08:11	08/05/22 13:32	7440-42-8	
Calcium	136000	ug/L	200	26.5	1	07/28/22 08:11	08/05/22 13:32	7440-70-2	
Cobalt	3.4J	ug/L	5.0	1.3	1	07/28/22 08:11	08/05/22 13:32	7440-48-4	
Iron	44.2J	ug/L	50.0	7.4	1	07/28/22 08:11	08/05/22 13:32	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/28/22 08:11	08/05/22 13:32	7439-92-1	
Lithium	34.7	ug/L	10.0	2.9	1	07/28/22 08:11	08/05/22 13:32	7439-93-2	
Magnesium	30500	ug/L	50.0	24.1	1	07/28/22 08:11	08/05/22 13:32	7439-95-4	
Manganese	429	ug/L	5.0	0.38	1	07/28/22 08:11	08/05/22 13:32	7439-96-5	
Molybdenum	3.3J	ug/L	20.0	0.91	1	07/28/22 08:11	08/05/22 13:32	7439-98-7	
Potassium	5680	ug/L	500	90.1	1	07/28/22 08:11	08/05/22 13:32	7440-09-7	
Sodium	5010	ug/L	500	38.8	1	07/28/22 08:11	08/05/22 13:32	7440-23-5	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony	0.17J	ug/L	1.0	0.12	1	07/28/22 08:11	07/29/22 16:31	7440-36-0	
Arsenic	0.36J	ug/L	1.0	0.14	1	07/28/22 08:11	07/29/22 16:31	7440-38-2	
Cadmium	0.080J	ug/L	0.50	0.053	1	07/28/22 08:11	07/29/22 16:31	7440-43-9	
Chromium	0.66J	ug/L	1.0	0.31	1	07/28/22 08:11	07/29/22 16:31	7440-47-3	
Selenium	4.2	ug/L	1.0	0.18	1	07/28/22 08:11	07/29/22 16:31	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/28/22 08:11	07/29/22 16:31	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Kansas City							
Mercury	<0.064	ug/L	0.20	0.064	1	08/01/22 11:19	08/02/22 11:06	7439-97-6	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	417	mg/L	20.0	4.6	1		08/08/22 15:04		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	536	mg/L	10.0	10.0	1		08/01/22 11:32		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	2.0	mg/L	1.0	0.53	1		08/05/22 21:49	16887-00-6	B
Fluoride	0.41	mg/L	0.20	0.12	1		08/05/22 21:49	16984-48-8	
Sulfate	36.2	mg/L	2.0	1.1	2		08/05/22 22:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-SCPD-FB-1 Lab ID: 60406477005 Collected: 07/25/22 15:45 Received: 07/27/22 03:41 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	<0.82	ug/L	5.0	0.82	1	07/28/22 08:11	08/05/22 13:34	7440-39-3	
Beryllium	<0.080	ug/L	1.0	0.080	1	07/28/22 08:11	08/05/22 13:34	7440-41-7	
Boron	<7.6	ug/L	100	7.6	1	07/28/22 08:11	08/05/22 13:34	7440-42-8	
Calcium	35.2J	ug/L	200	26.5	1	07/28/22 08:11	08/05/22 13:34	7440-70-2	
Cobalt	<1.3	ug/L	5.0	1.3	1	07/28/22 08:11	08/05/22 13:34	7440-48-4	
Iron	<7.4	ug/L	50.0	7.4	1	07/28/22 08:11	08/05/22 13:34	7439-89-6	
Lead	<2.8	ug/L	10.0	2.8	1	07/28/22 08:11	08/05/22 13:34	7439-92-1	
Lithium	<2.9	ug/L	10.0	2.9	1	07/28/22 08:11	08/05/22 13:34	7439-93-2	
Magnesium	<24.1	ug/L	50.0	24.1	1	07/28/22 08:11	08/05/22 13:34	7439-95-4	
Manganese	<0.38	ug/L	5.0	0.38	1	07/28/22 08:11	08/05/22 13:34	7439-96-5	
Molybdenum	<0.91	ug/L	20.0	0.91	1	07/28/22 08:11	08/05/22 13:34	7439-98-7	
Potassium	<90.1	ug/L	500	90.1	1	07/28/22 08:11	08/05/22 13:34	7440-09-7	
Sodium	51.1J	ug/L	500	38.8	1	07/28/22 08:11	08/05/22 13:34	7440-23-5	B
200.8 MET ICPMS									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Pace Analytical Services - Kansas City									
Antimony	<0.12	ug/L	1.0	0.12	1	07/28/22 08:11	07/29/22 16:33	7440-36-0	
Arsenic	<0.14	ug/L	1.0	0.14	1	07/28/22 08:11	07/29/22 16:33	7440-38-2	
Cadmium	<0.053	ug/L	0.50	0.053	1	07/28/22 08:11	07/29/22 16:33	7440-43-9	
Chromium	0.51J	ug/L	1.0	0.31	1	07/28/22 08:11	07/29/22 16:33	7440-47-3	
Selenium	<0.18	ug/L	1.0	0.18	1	07/28/22 08:11	07/29/22 16:33	7782-49-2	
Thallium	<0.15	ug/L	1.0	0.15	1	07/28/22 08:11	07/29/22 16:33	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Kansas City									
Mercury	<0.064	ug/L	0.20	0.064	1	08/01/22 11:19	08/02/22 11:09	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Kansas City									
Alkalinity, Total as CaCO3	8.3J	mg/L	20.0	4.6	1		08/08/22 15:10		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Kansas City									
Total Dissolved Solids	7.0	mg/L	5.0	5.0	1		08/01/22 11:32		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Pace Analytical Services - Kansas City									
Chloride	0.63J	mg/L	1.0	0.53	1		08/05/22 22:52	16887-00-6	B
Fluoride	<0.12	mg/L	0.20	0.12	1		08/05/22 22:52	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		08/05/22 22:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 800376

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3187041

Matrix: Water

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.064	0.20	0.064	08/02/22 10:50	

LABORATORY CONTROL SAMPLE: 3187042

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3187043 3187044

Parameter	Units	60406477003		3187044		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MSD Result								
Mercury	ug/L	<0.064	5	5	4.9	5.1	97	102	75-125	5	20		

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 799890 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3185087 Matrix: Water
 Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.82	5.0	0.82	08/05/22 13:00	
Beryllium	ug/L	<0.080	1.0	0.080	08/05/22 13:00	
Boron	ug/L	<7.6	100	7.6	08/05/22 13:00	
Calcium	ug/L	<26.5	200	26.5	08/05/22 13:00	
Cobalt	ug/L	<1.3	5.0	1.3	08/05/22 13:00	
Iron	ug/L	<7.4	50.0	7.4	08/05/22 13:00	
Lead	ug/L	<2.8	10.0	2.8	08/05/22 13:00	
Lithium	ug/L	<2.9	10.0	2.9	08/05/22 13:00	
Magnesium	ug/L	<24.1	50.0	24.1	08/05/22 13:00	
Manganese	ug/L	<0.38	5.0	0.38	08/05/22 13:00	
Molybdenum	ug/L	<0.91	20.0	0.91	08/05/22 13:00	
Potassium	ug/L	<90.1	500	90.1	08/05/22 13:00	
Sodium	ug/L	67.1J	500	38.8	08/05/22 13:00	

LABORATORY CONTROL SAMPLE: 3185088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	977	98	85-115	
Beryllium	ug/L	1000	996	100	85-115	
Boron	ug/L	1000	949	95	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	985	99	85-115	
Iron	ug/L	10000	9420	94	85-115	
Lead	ug/L	1000	1010	101	85-115	
Lithium	ug/L	1000	957	96	85-115	
Magnesium	ug/L	10000	10000	100	85-115	
Manganese	ug/L	1000	989	99	85-115	
Molybdenum	ug/L	1000	985	99	85-115	
Potassium	ug/L	10000	9670	97	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3185089 3185090

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60406477003 Result	Spike Conc.	Spike Conc.	MS Result						
Barium	ug/L	249	1000	1000	1250	1240	100	99	70-130	0	20
Beryllium	ug/L	<0.080	1000	1000	1020	1020	102	102	70-130	0	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3185089 3185090													
Parameter	Units	60406477003		MS	MSD	MS	MSD	% Rec	MSD	% Rec	Max		
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	ug/L	119	1000	1000	1000	1100	1100	98	98	70-130	0	20	
Calcium	ug/L	152000	10000	10000	10000	158000	157000	59	49	70-130	1	20	M1
Cobalt	ug/L	<1.3	1000	1000	1000	1020	1010	102	101	70-130	1	20	
Iron	ug/L	11.2J	10000	10000	10000	9640	9650	96	96	70-130	0	20	
Lead	ug/L	<2.8	1000	1000	1000	1050	1040	104	104	70-130	0	20	
Lithium	ug/L	37.4	1000	1000	1000	1050	1050	101	101	70-130	0	20	
Magnesium	ug/L	31300	10000	10000	10000	40700	40600	94	93	70-130	0	20	
Manganese	ug/L	506	1000	1000	1000	1520	1510	102	101	70-130	1	20	
Molybdenum	ug/L	3.2J	1000	1000	1000	1030	1030	103	102	70-130	1	20	
Potassium	ug/L	14400	10000	10000	10000	24300	24400	99	100	70-130	0	20	
Sodium	ug/L	6050	10000	10000	10000	16100	16000	100	100	70-130	0	20	

MATRIX SPIKE SAMPLE: 3185091							
Parameter	Units	60406477005		MS	MS	% Rec	Qualifiers
		Result	Spike	Result	% Rec	Limits	
Barium	ug/L	<0.82	1000	973	97	70-130	
Beryllium	ug/L	<0.080	1000	1010	101	70-130	
Boron	ug/L	<7.6	1000	941	94	70-130	
Calcium	ug/L	35.2J	10000	10100	101	70-130	
Cobalt	ug/L	<1.3	1000	998	100	70-130	
Iron	ug/L	<7.4	10000	9260	93	70-130	
Lead	ug/L	<2.8	1000	999	100	70-130	
Lithium	ug/L	<2.9	1000	949	95	70-130	
Magnesium	ug/L	<24.1	10000	9900	99	70-130	
Manganese	ug/L	<0.38	1000	998	100	70-130	
Molybdenum	ug/L	<0.91	1000	988	99	70-130	
Potassium	ug/L	<90.1	10000	9610	96	70-130	
Sodium	ug/L	51.1J	10000	9700	97	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch:	799891	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3185092 Matrix: Water
Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.12	1.0	0.12	07/29/22 15:53	
Arsenic	ug/L	<0.14	1.0	0.14	07/29/22 15:53	
Cadmium	ug/L	<0.053	0.50	0.053	07/29/22 15:53	
Chromium	ug/L	<0.31	1.0	0.31	07/29/22 15:53	
Selenium	ug/L	<0.18	1.0	0.18	07/29/22 15:53	
Thallium	ug/L	<0.15	1.0	0.15	07/29/22 15:53	

LABORATORY CONTROL SAMPLE: 3185093

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.3	96	85-115	
Arsenic	ug/L	40	37.6	94	85-115	
Cadmium	ug/L	40	38.5	96	85-115	
Chromium	ug/L	40	38.7	97	85-115	
Selenium	ug/L	40	39.7	99	85-115	
Thallium	ug/L	40	37.2	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3185094 3185095

Parameter	Units	3185094		3185095		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	ug/L	0.16J	40	40	39.1	38.7	97	96	70-130	1	20
Arsenic	ug/L	0.47J	40	40	38.6	37.8	95	93	70-130	2	20
Cadmium	ug/L	0.087J	40	40	38.3	37.5	96	94	70-130	2	20
Chromium	ug/L	0.67J	40	40	39.5	38.9	97	96	70-130	2	20
Selenium	ug/L	4.8	40	40	43.0	41.8	96	93	70-130	3	20
Thallium	ug/L	<0.15	40	40	39.5	38.8	99	97	70-130	2	20

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 801450

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3190690

Matrix: Water

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	08/08/22 13:53	

LABORATORY CONTROL SAMPLE: 3190691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	484	97	90-110	

SAMPLE DUPLICATE: 3190692

Parameter	Units	60405966001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	121	121	0	10	H1

SAMPLE DUPLICATE: 3190693

Parameter	Units	60406477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	449	459	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 800357

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3186999

Matrix: Water

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	08/01/22 11:31	

LABORATORY CONTROL SAMPLE: 3187000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3187001

Parameter	Units	60406477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	694	684	1	10	

SAMPLE DUPLICATE: 3187002

Parameter	Units	60406748004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	481	483	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 801205 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

METHOD BLANK: 3189698 Matrix: Water
 Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.12	0.20	0.12	08/05/22 16:21	
Sulfate	mg/L	<0.55	1.0	0.55	08/05/22 16:21	

METHOD BLANK: 3192829 Matrix: Water
 Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477004, 60406477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.61J	1.0	0.53	08/06/22 08:39	
Fluoride	mg/L	<0.12	0.20	0.12	08/06/22 08:39	
Sulfate	mg/L	<0.55	1.0	0.55	08/06/22 08:39	

LABORATORY CONTROL SAMPLE: 3189699

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	4.7	93	90-110	

LABORATORY CONTROL SAMPLE: 3192830

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	4.6	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3189700 3189701

Parameter	Units	60406477003		3189701		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MSD Result						
Chloride	mg/L	3.2	5	5	7.7	91	90	80-120	0	15	
Fluoride	mg/L	0.18J	2.5	2.5	2.5	94	96	80-120	1	15	
Sulfate	mg/L	35.3	50	50	77.8	85	84	80-120	0	15	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

SAMPLE DUPLICATE: 3189702

Parameter	Units	60406477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	3.2	3.1	3	15	
Fluoride	mg/L	0.18J	0.17J		15	
Sulfate	mg/L	35.3	34.3	3	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-TMW-4 **Lab ID: 60406477001** Collected: 07/25/22 15:21 Received: 07/27/22 03:41 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0587 ± 0.446 (0.881) C:NA T:87%	pCi/L	08/10/22 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.627 ± 0.418 (0.796) C:73% T:85%	pCi/L	08/24/22 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-TMW-5 **Lab ID: 60406477002** Collected: 07/25/22 14:07 Received: 07/27/22 03:41 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.127 ± 0.466 (0.895) C:NA T:92%	pCi/L	08/10/22 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.496 ± 0.370 (0.719) C:69% T:91%	pCi/L	08/24/22 14:52	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-TMW-6 Lab ID: 60406477003 Collected: 07/25/22 12:40 Received: 07/27/22 03:41 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.149 ± 0.401 (0.744) C:NA T:93%	pCi/L	08/10/22 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.653 ± 0.388 (0.716) C:73% T:92%	pCi/L	08/24/22 14:52	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Sample: S-SCPD-DUP-1 **Lab ID: 60406477004** Collected: 07/25/22 08:00 Received: 07/27/22 03:41 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.117 ± 0.399 (0.769) C:NA T:96%	pCi/L	08/11/22 11:19	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.677 ± 0.406 (0.757) C:77% T:88%	pCi/L	08/12/22 15:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-FB-1 Lab ID: 60406477005 Collected: 07/25/22 15:45 Received: 07/27/22 03:41 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.115 ± 0.277 (0.534) C:NA T:98%	pCi/L	08/11/22 11:19	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.0775 ± 0.301 (0.683) C:74% T:97%	pCi/L	08/12/22 15:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: S-SCPD-MS-1 Lab ID: 60406477006 Collected: 07/25/22 12:40 Received: 07/27/22 03:41 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	93.97 %REC ± NA (NA) C:NA T:NA	pCi/L	08/10/22 15:53	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	99.69 %REC ± NA (NA) C:NA T:NA	pCi/L	08/24/22 14:53	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	109.75 %REC 15.49RPD ± NA (NA) C:NA T:NA	pCi/L	08/10/22 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	94.04 %REC 5.84 RPD ± NA (NA) C:NA T:NA	pCi/L	08/24/22 14:53	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 522710

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60406477004, 60406477005

METHOD BLANK: 2534041

Matrix: Water

Associated Lab Samples: 60406477004, 60406477005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.187 ± 0.226 (0.344) C:NA T:94%	pCi/L	08/11/22 10:58	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch:	522711	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 60406477004, 60406477005

METHOD BLANK:	2534042	Matrix:	Water
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Associated Lab Samples: 60406477004, 60406477005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.695 ± 0.358 (0.621) C:77% T:89%	pCi/L	08/12/22 11:52	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 521976

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477006, 60406477007

METHOD BLANK: 2530924

Matrix: Water

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477006, 60406477007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.523 ± 0.410 (0.571) C:NA T:97%	pCi/L	08/10/22 15:20	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

QC Batch: 521977

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477006, 60406477007

METHOD BLANK: 2530927

Matrix: Water

Associated Lab Samples: 60406477001, 60406477002, 60406477003, 60406477006, 60406477007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.236 ± 0.297 (0.630) C:77% T:96%	pCi/L	08/24/22 14:51	

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

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.

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60406477001	S-TMW-4	EPA 200.7	799890	EPA 200.7	799975
60406477002	S-TMW-5	EPA 200.7	799890	EPA 200.7	799975
60406477003	S-TMW-6	EPA 200.7	799890	EPA 200.7	799975
60406477004	S-SCPD-DUP-1	EPA 200.7	799890	EPA 200.7	799975
60406477005	S-SCPD-FB-1	EPA 200.7	799890	EPA 200.7	799975
60406477001	S-TMW-4	EPA 200.8	799891	EPA 200.8	799976
60406477002	S-TMW-5	EPA 200.8	799891	EPA 200.8	799976
60406477003	S-TMW-6	EPA 200.8	799891	EPA 200.8	799976
60406477004	S-SCPD-DUP-1	EPA 200.8	799891	EPA 200.8	799976
60406477005	S-SCPD-FB-1	EPA 200.8	799891	EPA 200.8	799976
60406477001	S-TMW-4	EPA 7470	800376	EPA 7470	800448
60406477002	S-TMW-5	EPA 7470	800376	EPA 7470	800448
60406477003	S-TMW-6	EPA 7470	800376	EPA 7470	800448
60406477004	S-SCPD-DUP-1	EPA 7470	800376	EPA 7470	800448
60406477005	S-SCPD-FB-1	EPA 7470	800376	EPA 7470	800448
60406477001	S-TMW-4	EPA 903.1	521976		
60406477002	S-TMW-5	EPA 903.1	521976		
60406477003	S-TMW-6	EPA 903.1	521976		
60406477004	S-SCPD-DUP-1	EPA 903.1	522710		
60406477005	S-SCPD-FB-1	EPA 903.1	522710		
60406477006	S-SCPD-MS-1	EPA 903.1	521976		
60406477007	S-SCPD-MSD-1	EPA 903.1	521976		
60406477001	S-TMW-4	EPA 904.0	521977		
60406477002	S-TMW-5	EPA 904.0	521977		
60406477003	S-TMW-6	EPA 904.0	521977		
60406477004	S-SCPD-DUP-1	EPA 904.0	522711		
60406477005	S-SCPD-FB-1	EPA 904.0	522711		
60406477006	S-SCPD-MS-1	EPA 904.0	521977		
60406477007	S-SCPD-MSD-1	EPA 904.0	521977		
60406477001	S-TMW-4	SM 2320B	801450		
60406477002	S-TMW-5	SM 2320B	801450		
60406477003	S-TMW-6	SM 2320B	801450		
60406477004	S-SCPD-DUP-1	SM 2320B	801450		
60406477005	S-SCPD-FB-1	SM 2320B	801450		
60406477001	S-TMW-4	SM 2540C	800357		
60406477002	S-TMW-5	SM 2540C	800357		
60406477003	S-TMW-6	SM 2540C	800357		
60406477004	S-SCPD-DUP-1	SM 2540C	800357		
60406477005	S-SCPD-FB-1	SM 2540C	800357		
60406477001	S-TMW-4	EPA 300.0	801205		
60406477002	S-TMW-5	EPA 300.0	801205		
60406477003	S-TMW-6	EPA 300.0	801205		
60406477004	S-SCPD-DUP-1	EPA 300.0	801205		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60406477

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60406477005	S-SCPD-FB-1	EPA 300.0	801205		

REPORT OF LABORATORY ANALYSIS

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WO#: 60406477



DC#_Title: ENV-FRM-LENE-0009_Sample C



Revision: 2

Effective Date: 01/12/2022

Issued By: Lenexa

Client Name: Golder Associates

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other 2PLC

Thermometer Used: T301 Type of Ice: Wei Blue None

Cooler Temperature (°C): As-read 2.9 Corr. Factor -1.0 Corrected 1.9

Date and initials of person examining contents: 7/27/22
JA

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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) <input type="checkbox"/> Yes <input type="checkbox"/> No Potassium iodide test strip turns blue/purple? (Preserve) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

LOT#: SS192

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Client: Golder Associates

Profile #: 9285

Site: Ameren Sioux Energy Center SCPD

Notes

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

Container Codes

	Glass		Plastic	Misc.
DG9B	40mL bisulfate clear vial	WGKU	1L NaOH plastic	Wiper/Swab
DG9H	40mL HCl amber vial	WGFU	1L HNO3 plastic	120mL Coliform Na Thiosulfate
DG9M	40mL MeOH clear vial	WG2U	1L H2SO4 plastic	ZPLC
DG9Q	40mL TSP amber vial	JGFU	1L unpreserved plastic	AF
DG9S	40mL H2SO4 amber vial	AG0U	1L NaOH, Zn Acetate	C
DG9T	40mL Na Thio amber vial	AG1H	500mL NaOH plastic	R
DG9U	40mL amber unpreserved	AG1S	500mL HNO3 plastic	U
VG9H	40mL HCl clear vial	AG1T	500mL H2SO4 plastic	
VG9T	40mL Na Thio. clear vial	AG1U	500mL unpreserved plastic	
VG9U	40mL unpreserved clear vial	AG2S	500mL NaOH, Zn Acetate	
BG1S	1liter H2SO4 clear glass	AG2U	250mL NaOH plastic	
BG1U	1liter unpres glass	AG3S	250mL HNO3 plastic - field filtered	
BG3H	250mL HCl Clear glass	AG2U	250mL HNO3 plastic	WT
BG3U	250mL Unpres Clear glass	AG3U	250mL unpreserved plastic	SL
WGDU	16oz clear soil jar	AG4U	250mL H2SO4 plastic	NAL
		AG5U	250mL NaOH, Zn Acetate	OL
			125mL unpreserved plastic	WP
			125mL HNO3 plastic	DW
			16oz unpreserved plastic	

Work Order Number: 60406477

Internal Transfer Chain of Custody



Samples Pre-Logged into eCOC.

Cert. Needed: Yes No

Workorder: 60406477 Workorder Name: AMEREN SEC SCPD

Owner Received Date: 7/27/2022 Results Requested By: 8/17/2022

Report To: Subcontract To

Jamie Church
Pace Analytical Kansas
9608 Loiret Blvd.
Lenexa, KS 66219
Phone 314-838-7223

Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600

WO#: 30509412



Radium 226
Radium 228

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers			LAB USE ONLY	
						HNO3				
1	S-TMW-4	PS	7/25/2022 15:21	60406477001	Water	2				
2	S-TMW-5	PS	7/25/2022 14:07	60406477002	Water	2				
3	S-TMW-6	RQS	7/25/2022 12:40	60406477003	Water	2				
4	S-SCPD-DUP-1	PS	7/25/2022 08:00	60406477004	Water	2				
5	S-SCPD-FB-1	PS	7/25/2022 15:45	60406477005	Water	2				
6	S-SCPD-MS-1	RQS	7/25/2022 12:40	60406477006	Water	2				
7	S-SCPD-MSD-1	RQS	7/25/2022 12:40	60406477007	Water	2				

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1			<i>Philip Hester</i>	7/28/2022 9:30		N		N
2								
3								

Comments
S-TMW-6 (003) is the primary sample for MS/MSD samples S-SCPD-MS-1 (006) and S-SCPD-MSD-1 (007)

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

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

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace Kansas

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 57167 1406 7004

Label <u>JA</u>
LIMS Login <u>VPTrc</u>

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used _____ Type of Ice: Wet Blue None

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

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A	7-28-22 JA	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Chain of Custody Relinquished:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>pH<2</u>	
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JA</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JA</u>	Date: <u>7-28-22</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

PM: CF1 Due Date: 08/25/22
 CLIENT: PACE_60_LEKS

NO#: 30509412

MEMORANDUM**DATE** September 6, 2022**Project No.** 153140604.0003**TO** Project File
Golder Associates**CC** Amanda Derhake, Jeff Ingram**FROM** Annie Muehlfarth**EMAIL** ann.muehlfarth@wsp.com**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD BASELINE EVENT #8 - DATA PACKAGE 60406477**

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

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When 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 USA Inc
 Project Name: Ameren - SEC - SCPD
 Reviewer: A. Muehlfarth

Project Manager: J. Ingram
 Project Number: GL153140604.0003
 Validation Date: 9/6/2022

Laboratory: Pace Analytical

SDG #: 60406477

Analytical Method (type and no.): EPA 200.7/200.8/7470 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)

Matrix: Air Soil/Sed. Water Waste _____

Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-SCPD-MS-1, S-SCPD-MSD-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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7/25/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>BTT</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Was the COC signed by both field and laboratory personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-5
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max RPD: 3% [<15%]

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

Comments/Notes:

Dilutions:

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

Blanks:

MB 3185087: Sodium (67.1J). Associated with samples -001 through -005. Results >RL and 10x blank not qualified. Results <RL reported at RL and qualified non-detect.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-SCPD-FB-1	Sodium	500	UJ	Detected in MB, RL > result
"	Chloride	1.0	UJ	"
S-TMW-5	"	1.9	J	Detected in MB, 10x blank > result > RL
S-TMW-6	"	3.2	J	"
S-SCPD-DUP-1	"	2.0	J	"
S-TMW-4	"	3.1	J	Detected in MB/FB, 10x blank > result > RL
"	Chromium	1.0	UJ	Detected in FB, RL > result
S-TMW-5	Iron	34.8	J	Dup RPD exceeds limit
"	Molybdenum	2.1	J	"
"	Chromium	0.53	J	"
"	Fluoride	0.22	J	"
"	Radium-228	0.496 ± 0.370	J	"
S-SCPD-DUP-1	Iron	44.2	J	"
"	Molybdenum	3.3	J	"
"	Chromium	0.66	J	"
"	Fluoride	0.41	J	"
"	Radium-228	0.677 ± 0.406	J	"
S-TMW-6	Calcium	152000	J-	MS/MSD % recovery low

Signature: _____ *Ann Muhlforth* _____

Date: 9/6/2022

November 22, 2022

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

RE: Project: AMEREN SEC SCPD
Pace Project No.: 60413642

Dear Jeffrey Ingram:

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

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

- Pace Analytical Services - Kansas City

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

Sincerely,



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

Enclosures

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



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212023-1

Oklahoma Certification #: 2022-057

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212022-12

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60413642001	S-TMW-4	Water	10/20/22 16:31	10/21/22 17:48
60413642002	S-TMW-5	Water	10/20/22 15:20	10/21/22 17:48
60413642003	S-TMW-6	Water	10/20/22 14:15	10/21/22 17:48
60413642004	S-SCPD-DUP-1	Water	10/20/22 00:00	10/21/22 17:48
60413642005	S-SCPD-FB-1	Water	10/20/22 16:41	10/21/22 17:48
60413638002	S-UG-2	Water	10/21/22 11:56	10/21/22 17:48
60413477005	S-BMW-1S	Water	10/18/22 15:35	10/20/22 04:13
60413477004	S-BMW-3S	Water	10/18/22 14:06	10/20/22 04:13

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60413642001	S-TMW-4	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413642002	S-TMW-5	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413642003	S-TMW-6	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413642004	S-SCPD-DUP-1	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413642005	S-SCPD-FB-1	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413638002	S-UG-2	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477005	S-BMW-1S	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K
60413477004	S-BMW-3S	EPA 200.7	MA1	7	PASI-K
		SM 2320B	SZ	1	PASI-K
		SM 2540C	TML	1	PASI-K
		EPA 300.0	RKA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-TMW-4 **Lab ID: 60413642001** Collected: 10/20/22 16:31 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	108	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 15:16	7440-42-8	
Calcium	126000	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 15:16	7440-70-2	
Iron	<5.6	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 15:16	7439-89-6	
Magnesium	34700	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 15:16	7439-95-4	
Manganese	643	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 15:16	7439-96-5	
Potassium	6880	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 15:16	7440-09-7	
Sodium	5900	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 15:16	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	400	mg/L	20.0	4.6	1		10/28/22 15:08		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	526	mg/L	10.0	10.0	1		10/27/22 16:16		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	3.1	mg/L	1.0	0.53	1		11/08/22 13:30	16887-00-6	
Fluoride	0.30	mg/L	0.20	0.12	1		11/08/22 13:30	16984-48-8	
Sulfate	47.7	mg/L	10.0	5.5	10		11/08/22 13:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-TMW-5 **Lab ID: 60413642002** Collected: 10/20/22 15:20 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	101	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 15:22	7440-42-8	
Calcium	144000	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 15:22	7440-70-2	M1
Iron	16.0J	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 15:22	7439-89-6	
Magnesium	31400	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 15:22	7439-95-4	
Manganese	393	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 15:22	7439-96-5	
Potassium	5810	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 15:22	7440-09-7	
Sodium	4620	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 15:22	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	453	mg/L	20.0	4.6	1		10/28/22 15:15		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	522	mg/L	10.0	10.0	1		10/27/22 16:17		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	1.8	mg/L	1.0	0.53	1		11/08/22 14:00	16887-00-6	
Fluoride	0.22	mg/L	0.20	0.12	1		11/08/22 14:00	16984-48-8	
Sulfate	36.8	mg/L	5.0	2.8	5		11/08/22 15:27	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-TMW-6 **Lab ID: 60413642003** Collected: 10/20/22 14:15 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	115	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 15:29	7440-42-8	
Calcium	120000	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 15:29	7440-70-2	
Iron	<5.6	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 15:29	7439-89-6	
Magnesium	26400	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 15:29	7439-95-4	
Manganese	253	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 15:29	7439-96-5	
Potassium	35400	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 15:29	7440-09-7	
Sodium	6310	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 15:29	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	401	mg/L	20.0	4.6	1		10/28/22 15:29		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	619	mg/L	10.0	10.0	1		10/27/22 16:16		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	1.3	mg/L	1.0	0.53	1		11/08/22 16:26	16887-00-6	
Fluoride	0.21	mg/L	0.20	0.12	1		11/08/22 16:26	16984-48-8	
Sulfate	38.1	mg/L	10.0	5.5	10		11/08/22 16:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-SCPD-DUP-1 **Lab ID: 60413642004** Collected: 10/20/22 00:00 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	113	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 15:31	7440-42-8	
Calcium	120000	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 15:31	7440-70-2	
Iron	9.9J	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 15:31	7439-89-6	
Magnesium	26200	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 15:31	7439-95-4	
Manganese	258	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 15:31	7439-96-5	
Potassium	34700	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 15:31	7440-09-7	
Sodium	6130	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 15:31	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	391	mg/L	20.0	4.6	1		10/28/22 15:35		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	573	mg/L	10.0	10.0	1		10/27/22 16:16		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	1.3	mg/L	1.0	0.53	1		11/08/22 16:55	16887-00-6	
Fluoride	0.21	mg/L	0.20	0.12	1		11/08/22 16:55	16984-48-8	
Sulfate	40.2	mg/L	5.0	2.8	5		11/08/22 17:09	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-SCPD-FB-1 **Lab ID: 60413642005** Collected: 10/20/22 16:41 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	<7.6	ug/L	100	7.6	1	11/01/22 10:08	11/11/22 08:32	7440-42-8	
Calcium	46.0J	ug/L	200	26.5	1	11/01/22 10:08	11/11/22 08:32	7440-70-2	
Iron	22.4J	ug/L	50.0	7.4	1	11/01/22 10:08	11/11/22 08:32	7439-89-6	
Magnesium	<24.1	ug/L	50.0	24.1	1	11/01/22 10:08	11/11/22 08:32	7439-95-4	
Manganese	<0.38	ug/L	5.0	0.38	1	11/01/22 10:08	11/11/22 08:32	7439-96-5	
Potassium	<90.1	ug/L	500	90.1	1	11/01/22 10:08	11/11/22 08:32	7440-09-7	
Sodium	<38.8	ug/L	500	38.8	1	11/01/22 10:08	11/11/22 08:32	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	<4.6	mg/L	20.0	4.6	1		10/28/22 15:42		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	266	mg/L	5.0	5.0	1		10/27/22 16:16		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	0.64J	mg/L	1.0	0.53	1		11/08/22 17:24	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		11/08/22 17:24	16984-48-8	
Sulfate	<0.55	mg/L	1.0	0.55	1		11/08/22 17:24	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Sample: S-UG-2 **Lab ID: 60413638002** Collected: 10/21/22 11:56 Received: 10/21/22 17:48 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	184	ug/L	100	4.2	1	11/01/22 10:08	11/10/22 14:25	7440-42-8	
Calcium	122000	ug/L	200	33.7	1	11/01/22 10:08	11/10/22 14:25	7440-70-2	M1
Iron	19.9J	ug/L	50.0	5.6	1	11/01/22 10:08	11/10/22 14:25	7439-89-6	
Magnesium	25300	ug/L	50.0	27.1	1	11/01/22 10:08	11/10/22 14:25	7439-95-4	
Manganese	150	ug/L	5.0	0.24	1	11/01/22 10:08	11/10/22 14:25	7439-96-5	
Potassium	5290	ug/L	500	87.6	1	11/01/22 10:08	11/10/22 14:25	7440-09-7	
Sodium	62200	ug/L	500	73.2	1	11/01/22 10:08	11/10/22 14:25	7440-23-5	M1
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO3	360	mg/L	20.0	4.6	1		11/01/22 14:25		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	649	mg/L	10.0	10.0	1		10/28/22 12:17		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	59.2	mg/L	5.0	2.6	5		11/08/22 14:43	16887-00-6	
Fluoride	<0.12	mg/L	0.20	0.12	1		11/08/22 13:40	16984-48-8	
Sulfate	47.3	mg/L	5.0	2.8	5		11/08/22 14:43	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

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

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

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ANALYTICAL RESULTS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron	84.2J	ug/L	100	4.2	1	10/28/22 16:57	11/10/22 13:01	7440-42-8	
Calcium	131000	ug/L	200	33.7	1	10/28/22 16:57	11/10/22 13:01	7440-70-2	
Iron	20.0J	ug/L	50.0	5.6	1	10/28/22 16:57	11/10/22 13:01	7439-89-6	
Magnesium	23900	ug/L	50.0	27.1	1	10/28/22 16:57	11/10/22 13:01	7439-95-4	
Manganese	210	ug/L	5.0	0.24	1	10/28/22 16:57	11/10/22 13:01	7439-96-5	
Potassium	525	ug/L	500	87.6	1	10/28/22 16:57	11/10/22 13:01	7440-09-7	
Sodium	5490	ug/L	500	73.2	1	10/28/22 16:57	11/10/22 13:01	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B Pace Analytical Services - Kansas City							
Alkalinity, Total as CaCO ₃	390	mg/L	20.0	4.6	1		10/26/22 15:32		
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	467	mg/L	10.0	10.0	1		10/25/22 10:48		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	11.7	mg/L	1.0	0.53	1		11/04/22 12:13	16887-00-6	
Fluoride	0.22	mg/L	0.20	0.12	1		11/04/22 12:13	16984-48-8	
Sulfate	27.8	mg/L	5.0	2.8	5		11/04/22 12:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch:	815417	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60413477004, 60413477005

METHOD BLANK: 3242907 Matrix: Water

Associated Lab Samples: 60413477004, 60413477005

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

LABORATORY CONTROL SAMPLE: 3242908

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242909 3242910

Parameter	Units	60413477002		60413477013		3242909		3242910		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec	MS % Rec	MSD % Rec				
Boron	ug/L	7150	1000	8000	1000	85	102	70-130	2	20			
Calcium	ug/L	73500	10000	82500	10000	90	101	70-130	1	20			
Iron	ug/L	2640	10000	12700	10000	100	100	70-130	0	20			
Magnesium	ug/L	15600	10000	25500	10000	99	100	70-130	0	20			
Manganese	ug/L	340	1000	1340	1000	100	101	70-130	1	20			
Potassium	ug/L	6740	10000	16800	10000	101	103	70-130	1	20			
Sodium	ug/L	22600	10000	32200	10000	97	96	70-130	0	20			

MATRIX SPIKE SAMPLE: 3242911

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

MATRIX SPIKE SAMPLE:		3242911					
Parameter	Units	60413477013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	7820	10000	17400	96	70-130	
Magnesium	ug/L	31500	10000	40000	85	70-130	
Manganese	ug/L	523	1000	1500	97	70-130	
Potassium	ug/L	3910	10000	13900	100	70-130	
Sodium	ug/L	5600	10000	15800	102	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815804

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413638002

METHOD BLANK: 3244375

Matrix: Water

Associated Lab Samples: 60413638002

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

LABORATORY CONTROL SAMPLE: 3244376

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3244377 3244378

Parameter	Units	60413638002		3244378		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Boron	ug/L	184	1000	1000	1150	1140	97	95	70-130	1	20
Calcium	ug/L	122000	10000	10000	122000	121000	-7	-12	70-130	0	20 M1
Iron	ug/L	19.9J	10000	10000	10100	9930	100	99	70-130	1	20
Magnesium	ug/L	25300	10000	10000	33300	33000	80	77	70-130	1	20
Manganese	ug/L	150	1000	1000	1150	1140	100	99	70-130	1	20
Potassium	ug/L	5290	10000	10000	15300	15100	100	98	70-130	2	20
Sodium	ug/L	62200	10000	10000	67500	68600	53	64	70-130	2	20 M1

MATRIX SPIKE SAMPLE: 3244379

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

MATRIX SPIKE SAMPLE:		3244379					
Parameter	Units	60413641001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	12.0J	10000	10000	100	70-130	
Magnesium	ug/L	16600	10000	26300	98	70-130	
Manganese	ug/L	395	1000	1380	99	70-130	
Potassium	ug/L	4400	10000	14400	100	70-130	
Sodium	ug/L	2820	10000	13100	102	70-130	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815805

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413642001

METHOD BLANK: 3244380

Matrix: Water

Associated Lab Samples: 60413642001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<4.2	100	4.2	11/10/22 14:54	
Calcium	ug/L	<33.7	200	33.7	11/10/22 14:54	
Iron	ug/L	7.8J	50.0	5.6	11/10/22 14:54	
Magnesium	ug/L	<27.1	50.0	27.1	11/10/22 14:54	
Manganese	ug/L	<0.24	5.0	0.24	11/10/22 14:54	
Potassium	ug/L	<87.6	500	87.6	11/10/22 14:54	
Sodium	ug/L	<73.2	500	73.2	11/10/22 14:54	

LABORATORY CONTROL SAMPLE: 3244381

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	964	96	85-115	
Calcium	ug/L	10000	10300	103	85-115	
Iron	ug/L	10000	10000	100	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	9970	100	85-115	
Sodium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3244382 3244383

Parameter	Units	60413641002		3244383		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Boron	ug/L	83.7J	1000	1040	1000	96	95	70-130	1	20	
Calcium	ug/L	118000	10000	129000	10000	105	91	70-130	1	20	
Iron	ug/L	1920	10000	11900	10000	100	98	70-130	2	20	
Magnesium	ug/L	21400	10000	31600	10000	102	100	70-130	0	20	
Manganese	ug/L	446	1000	1450	1000	101	99	70-130	1	20	
Potassium	ug/L	4760	10000	15000	10000	102	99	70-130	2	20	
Sodium	ug/L	3540	10000	14100	10000	106	101	70-130	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch:	815807	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60413642002, 60413642003, 60413642004, 60413642005

METHOD BLANK: 3244387 Matrix: Water

Associated Lab Samples: 60413642002, 60413642003, 60413642004, 60413642005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<4.2	100	4.2	11/10/22 15:18	
Calcium	ug/L	<33.7	200	33.7	11/10/22 15:18	
Iron	ug/L	<5.6	50.0	5.6	11/10/22 15:18	
Magnesium	ug/L	<27.1	50.0	27.1	11/10/22 15:18	
Manganese	ug/L	<0.24	5.0	0.24	11/10/22 15:18	
Potassium	ug/L	<87.6	500	87.6	11/10/22 15:18	
Sodium	ug/L	<73.2	500	73.2	11/10/22 15:18	

LABORATORY CONTROL SAMPLE: 3244388

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	956	96	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Iron	ug/L	10000	10000	100	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Potassium	ug/L	10000	9860	99	85-115	
Sodium	ug/L	10000	10100	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3244389 3244390

Parameter	Units	60413642002		3244390		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Boron	ug/L	101	1000	1040	1060	94	95	70-130	2	20	
Calcium	ug/L	144000	10000	147000	149000	31	52	70-130	1	20 M1	
Iron	ug/L	16.0J	10000	9950	9970	99	100	70-130	0	20	
Magnesium	ug/L	31400	10000	39400	40000	80	86	70-130	1	20	
Manganese	ug/L	393	1000	1360	1400	97	100	70-130	2	20	
Potassium	ug/L	5810	10000	15500	15700	97	99	70-130	1	20	
Sodium	ug/L	4620	10000	14400	14300	98	96	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 814616

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413477004, 60413477005

METHOD BLANK: 3239748

Matrix: Water

Associated Lab Samples: 60413477004, 60413477005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<4.6	20.0	4.6	10/26/22 14:59	

LABORATORY CONTROL SAMPLE: 3239749

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	500	495	99	90-110	

SAMPLE DUPLICATE: 3239750

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

SAMPLE DUPLICATE: 3239751

Parameter	Units	60413480006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	393	398	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815255 Analysis Method: SM 2320B
 QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

METHOD BLANK: 3242335 Matrix: Water
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

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

LABORATORY CONTROL SAMPLE: 3242336

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

SAMPLE DUPLICATE: 3242337

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

SAMPLE DUPLICATE: 3242338

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

SAMPLE DUPLICATE: 3242339

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

SAMPLE DUPLICATE: 3242340

Parameter	Units	60413642005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	<4.6		10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815834

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413638002

METHOD BLANK: 3244497

Matrix: Water

Associated Lab Samples: 60413638002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.6	20.0	4.6	11/01/22 13:12	

LABORATORY CONTROL SAMPLE: 3244498

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

SAMPLE DUPLICATE: 3244499

Parameter	Units	60414219001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	438	442	1	10	

SAMPLE DUPLICATE: 3244500

Parameter	Units	60414219004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	439	445	1	10	

SAMPLE DUPLICATE: 3244501

Parameter	Units	60413638002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	360	359	0	10	

SAMPLE DUPLICATE: 3244502

Parameter	Units	60413638007 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	405	400	1	10	

SAMPLE DUPLICATE: 3244503

Parameter	Units	60413645003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	152	151	1	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 814499	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413477004, 60413477005

METHOD BLANK: 3239207 Matrix: Water

Associated Lab Samples: 60413477004, 60413477005

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

LABORATORY CONTROL SAMPLE: 3239208

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

SAMPLE DUPLICATE: 3239209

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

SAMPLE DUPLICATE: 3239210

Parameter	Units	60413477004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	467	467	0	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 814996

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413642001, 60413642003, 60413642004, 60413642005

METHOD BLANK: 3241273

Matrix: Water

Associated Lab Samples: 60413642001, 60413642003, 60413642004, 60413642005

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

LABORATORY CONTROL SAMPLE: 3241274

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

SAMPLE DUPLICATE: 3241275

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

SAMPLE DUPLICATE: 3241276

Parameter	Units	60413641002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	<10.0	503		10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815001

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413642002

METHOD BLANK: 3241287

Matrix: Water

Associated Lab Samples: 60413642002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/27/22 16:17	

LABORATORY CONTROL SAMPLE: 3241288

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	984	98	80-120	

SAMPLE DUPLICATE: 3241289

Parameter	Units	60413642002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	522	506	3	10	

SAMPLE DUPLICATE: 3241291

Parameter	Units	60413698012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	479	457	5	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 815260	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413638002

METHOD BLANK: 3242365 Matrix: Water

Associated Lab Samples: 60413638002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/28/22 12:15	

LABORATORY CONTROL SAMPLE: 3242366

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	984	98	80-120	

SAMPLE DUPLICATE: 3242367

Parameter	Units	60411568006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	876	879	0	10	H1

SAMPLE DUPLICATE: 3242368

Parameter	Units	60413638002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	649	638	2	10	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch:	816402	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60413477004, 60413477005

METHOD BLANK: 3246987 Matrix: Water

Associated Lab Samples: 60413477004, 60413477005

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

METHOD BLANK: 3250187 Matrix: Water

Associated Lab Samples: 60413477004, 60413477005

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

LABORATORY CONTROL SAMPLE: 3246988

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

LABORATORY CONTROL SAMPLE: 3250188

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3246989 3246990

Parameter	Units	60413480003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Chloride	mg/L	86.4	100	100	177	168	91	81	80-120	6	15		
Fluoride	mg/L	0.41	2.5	2.5	3.0	2.9	102	100	80-120	1	15		
Sulfate	mg/L	285	100	100	436	386	151	100	80-120	12	15	E,M1	

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

SAMPLE DUPLICATE: 3246991

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 816677 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

METHOD BLANK: 3248352 Matrix: Water
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

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

METHOD BLANK: 3251718 Matrix: Water
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

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

METHOD BLANK: 3252693 Matrix: Water
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

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

METHOD BLANK: 3252716 Matrix: Water
 Associated Lab Samples: 60413642001, 60413642002, 60413642003, 60413642004, 60413642005

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

LABORATORY CONTROL SAMPLE: 3248353

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD
Pace Project No.: 60413642

LABORATORY CONTROL SAMPLE: 3248353

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

LABORATORY CONTROL SAMPLE: 3251719

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

LABORATORY CONTROL SAMPLE: 3252694

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

LABORATORY CONTROL SAMPLE: 3252717

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3248355 3248356

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3248357 3248358

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

SAMPLE DUPLICATE: 3248354

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

SAMPLE DUPLICATE: 3248359

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

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

QC Batch: 816964

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60413638002

METHOD BLANK: 3249328

Matrix: Water

Associated Lab Samples: 60413638002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.60J	1.0	0.53	11/08/22 13:08	
Fluoride	mg/L	<0.12	0.20	0.12	11/08/22 13:08	
Sulfate	mg/L	<0.55	1.0	0.55	11/08/22 13:08	

METHOD BLANK: 3251681

Matrix: Water

Associated Lab Samples: 60413638002

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

METHOD BLANK: 3252685

Matrix: Water

Associated Lab Samples: 60413638002

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

LABORATORY CONTROL SAMPLE: 3249329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 3251682

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

LABORATORY CONTROL SAMPLE: 3252686

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3249331 3249332

Parameter	Units	60413638002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	59.2	25	25	86.7	87.5	110	113	80-120	1	15		
Fluoride	mg/L	<0.12	2.5	2.5	2.8	2.9	112	115	80-120	3	15		
Sulfate	mg/L	47.3	25	25	75.9	76.2	114	116	80-120	0	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3249333 3249334

Parameter	Units	60413641002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	3.3	5	5	8.1	8.3	96	101	80-120	3	15		
Fluoride	mg/L	<0.12	2.5	2.5	2.9	3.0	112	118	80-120	5	15		
Sulfate	mg/L	35.8	25	25	63.5	63.9	111	112	80-120	1	15		

SAMPLE DUPLICATE: 3249330

Parameter	Units	60413638002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	59.2	59.6	1	15	
Fluoride	mg/L	<0.12	<0.12		15	
Sulfate	mg/L	47.3	47.6	1	15	

SAMPLE DUPLICATE: 3249335

Parameter	Units	60413641002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	3.3	3.2	1	15	
Fluoride	mg/L	<0.12	0.43		15	
Sulfate	mg/L	35.8	35.7	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SEC SCPD

Pace Project No.: 60413642

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60413477004	S-BMW-3S	EPA 200.7	815417	EPA 200.7	815453
60413477005	S-BMW-1S	EPA 200.7	815417	EPA 200.7	815453
60413638002	S-UG-2	EPA 200.7	815804	EPA 200.7	815888
60413642001	S-TMW-4	EPA 200.7	815805	EPA 200.7	815889
60413642002	S-TMW-5	EPA 200.7	815807	EPA 200.7	815891
60413642003	S-TMW-6	EPA 200.7	815807	EPA 200.7	815891
60413642004	S-SCPD-DUP-1	EPA 200.7	815807	EPA 200.7	815891
60413642005	S-SCPD-FB-1	EPA 200.7	815807	EPA 200.7	815891
60413477004	S-BMW-3S	SM 2320B	814616		
60413477005	S-BMW-1S	SM 2320B	814616		
60413638002	S-UG-2	SM 2320B	815834		
60413642001	S-TMW-4	SM 2320B	815255		
60413642002	S-TMW-5	SM 2320B	815255		
60413642003	S-TMW-6	SM 2320B	815255		
60413642004	S-SCPD-DUP-1	SM 2320B	815255		
60413642005	S-SCPD-FB-1	SM 2320B	815255		
60413477004	S-BMW-3S	SM 2540C	814499		
60413477005	S-BMW-1S	SM 2540C	814499		
60413638002	S-UG-2	SM 2540C	815260		
60413642001	S-TMW-4	SM 2540C	814996		
60413642002	S-TMW-5	SM 2540C	815001		
60413642003	S-TMW-6	SM 2540C	814996		
60413642004	S-SCPD-DUP-1	SM 2540C	814996		
60413642005	S-SCPD-FB-1	SM 2540C	814996		
60413477004	S-BMW-3S	EPA 300.0	816402		
60413477005	S-BMW-1S	EPA 300.0	816402		
60413638002	S-UG-2	EPA 300.0	816964		
60413642001	S-TMW-4	EPA 300.0	816677		
60413642002	S-TMW-5	EPA 300.0	816677		
60413642003	S-TMW-6	EPA 300.0	816677		
60413642004	S-SCPD-DUP-1	EPA 300.0	816677		
60413642005	S-SCPD-FB-1	EPA 300.0	816677		

REPORT OF LABORATORY ANALYSIS

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DC#_Title: ENV-FRM-LENE-0009_Sampl

Revision: 2

Effective Date: 01/12/20

WO#: 60413642



Client Name: WSP Golder

Courier: FedEx [] UPS [] VIA [] Clay [] PEX [] ECI [] Pace [] Xroads [x] Client [] Other []

Tracking #: Pace Shipping Label Used? Yes [] No [x]

Custody Seal on Cooler/Box Present: Yes [x] No [] Seals intact: Yes [x] No []

Packing Material: Bubble Wrap [] Bubble Bags [] Foam [] None [x] Other []

Thermometer Used: F299 Type of Ice: Wet [] Blue [] None []

Cooler Temperature (°C): As-read 1.9/0.4/14.9/ 4.8/0.7/ Corr. Factor 0.6 Corrected 1.9/0.4/14.9/ 4.8/0.7/0.6

Date and initials of person examining contents: EC 10/22

Temperature should be above freezing to 6°C 0.6

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	S-UG-2 on #COC 10
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	S-UG-2 on #COC 10
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: WT	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: G106001	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Date:

Client: WSP Golder

Profile #

9285

Site: COC #12 SCPD

Notes

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

Container Codes

Glass		Plastic		Misc.	
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1C	1L NaOH plastic
DG9H	40mL HCl amber vial	WGDU	4oz clear soil jar	BP1N	1L HNO3 plastic
DG9M	40mL MeOH clear vial	WG2U	4oz clear soil jar	BP1S	1L H2SO4 plastic
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide	BP1U	1L unpreserved plastic
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2C	500mL NaOH plastic
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3C	250mL NaOH plastic
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic
BG3U	250mL Unpres Clear glass	AG3U	500mL unpres amber glass	BP3U	250mL unpreserved plastic
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate
				BP4U	125mL unpreserved plastic
				BP4N	125mL HNO3 plastic
				BP4S	125mL H2SO4 plastic
				WPDU	16oz unpreserved plastic

Work Order Number:

60413642



MEMORANDUM

DATE January 10, 2023

Project No. 153140604

TO Project File
WSP USA Inc.

CC Amanda Derhake, Jeff Ingram

FROM Rahel Pommerenke

EMAIL rahel.pommerenke@wsp.com

DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER – SCPD - DATA PACKAGE - 60413642

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

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When 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: WSP USA Inc.
 Project Name: Ameren SEC - SCPD
 Reviewer: R.Pommerenke

Project Manager: J. Ingram
 Project Number: 153140604
 Validation Date: 1/10/2023

Laboratory: Pace Analytical Services SDG #: 60413642
 Analytical Method (type and no.): EPA 200.7 (Total Metals); SM2320B (Alkalinity); SM2540C (TDS); EPA 300.0 (Anions)
 Matrix: Air Soil/Sed. Water Waste
 Sample Names S-TMW-4, S-TMW-5, S-TMW-6, S-SCPD-DUP-1, S-SCPD-FB-1, S-UG-2, S-BMW-1S, S-BMW-3S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10/18/2022 - 10/21/2022</u>
b) Sampling team indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>PCS/GTM/SMA</u>
c) Sample location noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Sample depth indicated (Soils)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
e) Sample type indicated (grab/composite)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Grab</u>
f) Field QC noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes.</u>
g) Field parameters collected (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>pH, Sp.Cond, ORP, Temp, DO, Turb</u>
h) Field Calibration within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
i) Notations of unacceptable field conditions/performances from field logs or field notes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u></u>
j) Does the laboratory narrative indicate deficiencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u></u>
Note Deficiencies: <u></u>				

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Was the COC signed by both field and laboratory personnel?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>See notes</u>
c) Were samples received in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
b) Were hold times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
c) Were the correct preservatives used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
d) Was the correct method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
e) Were appropriate reporting limits achieved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u></u>
f) Were any sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes.</u>
g) Were any matrix problems noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>See notes.</u>

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes.
b) Were analytes detected in the field blank(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See notes.
c) Were analytes detected in the equipment blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d) Were analytes detected in the trip blank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were the proper analytes included in the LCS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Was the LCS accuracy criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S-SCPD-DUP-1 @ S-TMW-6
b) Were field dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes.
c) Were lab duplicates analyzed (note original and duplicate samples)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Were lab dup. precision criteria met (note RPD)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes.

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was the %D within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes.
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Was MSD accuracy criteria met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes.
Recovery could not be calculated since sample contained high concentration of analyte?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were MS/MSD precision criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments/Notes:

CO₂ No 12 containing S-BMW-1S and S-BMW-3S was not signed by laboratory personnel. No qualification necessary.

Dilutions:

Chloride and Sulfate analyzed at a dilution. No qualification necessary.

Blanks:

MB3244375: Boron (11.1J). Associated with sample 60413638002. Result > 10 x blank and > RL: no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB3244380: Iron (7.8J). Associated with sample 60413642001. Result ND: no qualification necessary.

MB3250187: Chloride (0.61J). Associated with samples 60413477004 and -005.

Result > 10 x blank result and > RL: no qualification necessary.

MB3249328: Chloride (0.60J). Associated with sample 60413638002.

Result > 10 x blank result and > RL: no qualification necessary.

S-SCPD-FB-1 @ S-TMW-4: Calcium (46.0J), Iron (22.4J), Total Dissolved Solids (266), Chloride (0.64J).

Results > 10x blank and > RL or ND: no qualification necessary. Results < 10 x blank and > RL: qualified as estimates.

Duplicates:

S-SCPD-DUP-1 @ S-TMW-6: Iron detected in DUP and ND in parent sample.

Sample Duplicate 3248354: Fluoride detected in DUP and ND in parent sample. Performed on unrelated sample: no qualification necessary.

Sample Duplicate 3249335: Fluoride detected in DUP and ND in parent sample.

Performed on unrelated sample: no qualification necessary.

Sample Duplicate 3241276: Total Dissolved Solids detected in DUP and ND in parent sample.

Performed on unrelated sample: no qualification necessary.

MS/MSD:

3244377/3244378: MS/MSD % recovery low (<10%) for calcium. Parent sample concentration for calcium is greater than 4x the spike concentration: no qualification necessary. MS/MSD % recovery low for sodium. Associated with S-UG-2.

3244389/3244390: MS/MSD % recovery low for calcium. Associated with S-TMW-5.

3246989/3246990: MS % recovery high for sulfate. Performed on unrelated sample: no qualification necessary.

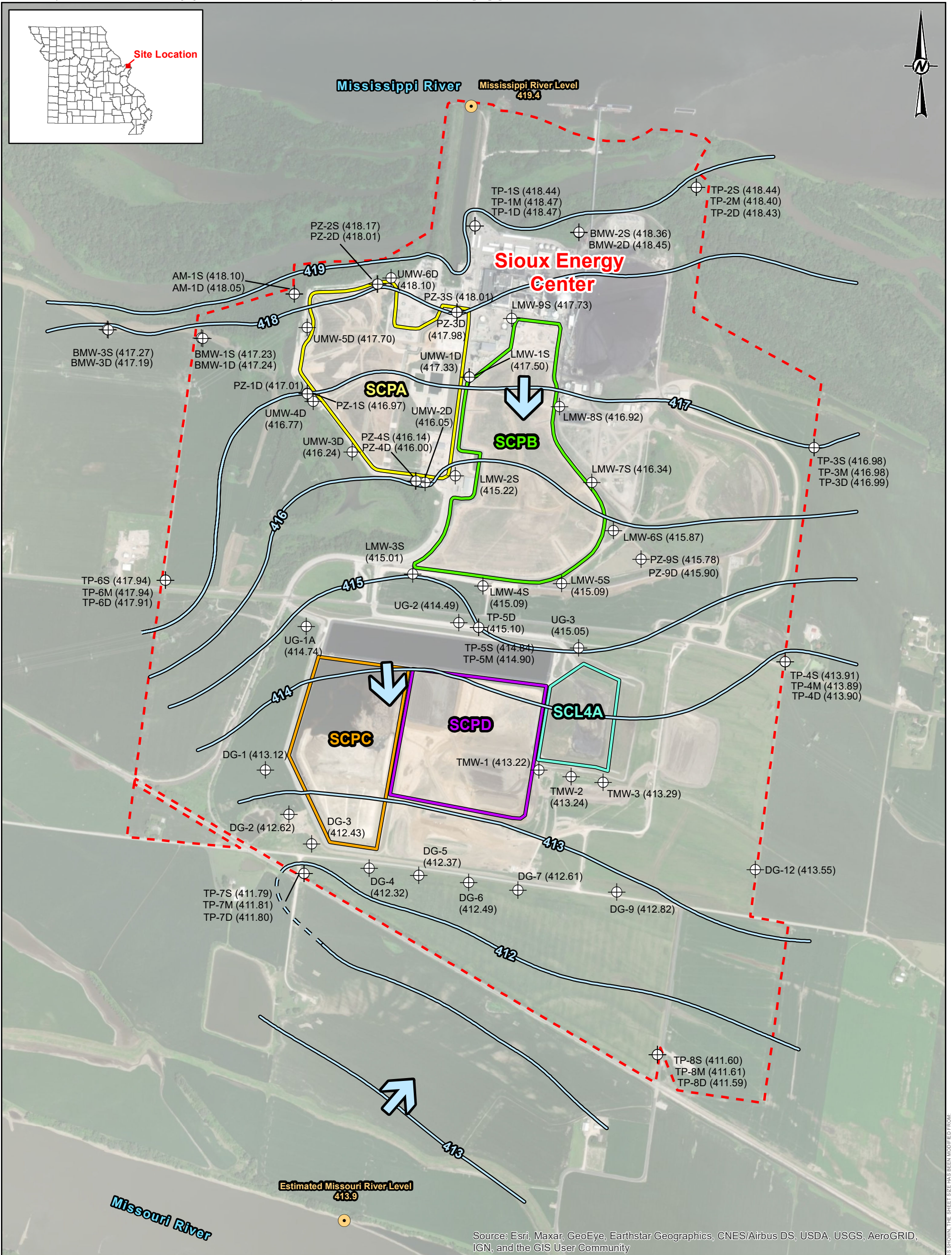
3248355/3248356: MS % recovery high for chloride. Performed on unrelated sample: no qualification necessary.

3248357/3248358: MS/MSD % recovery high for sulfate. Associated with S-TMW-5.

3242911: MS % recovery low for calcium. Performed on unrelated sample: no qualification necessary.

APPENDIX C

2022 Potentiometric Surface Maps



LEGEND

CCR Units

- Sioux Energy Center Property Boundary
- SCPA - Bottom Ash Surface Impoundment
- SCPB - Fly Ash Surface Impoundment
- SCPC - WFGD Surface Impoundment
- SCL4A - Dry CCR Disposal Area
- Proposed SCPD - WFGD Surface Impoundment

Groundwater Elevation Contour (FT MSL)

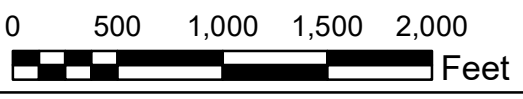
- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- River Gauge Location
- ⊕ Monitoring Well or Piezometer
- ➔ Groundwater Flow Direction

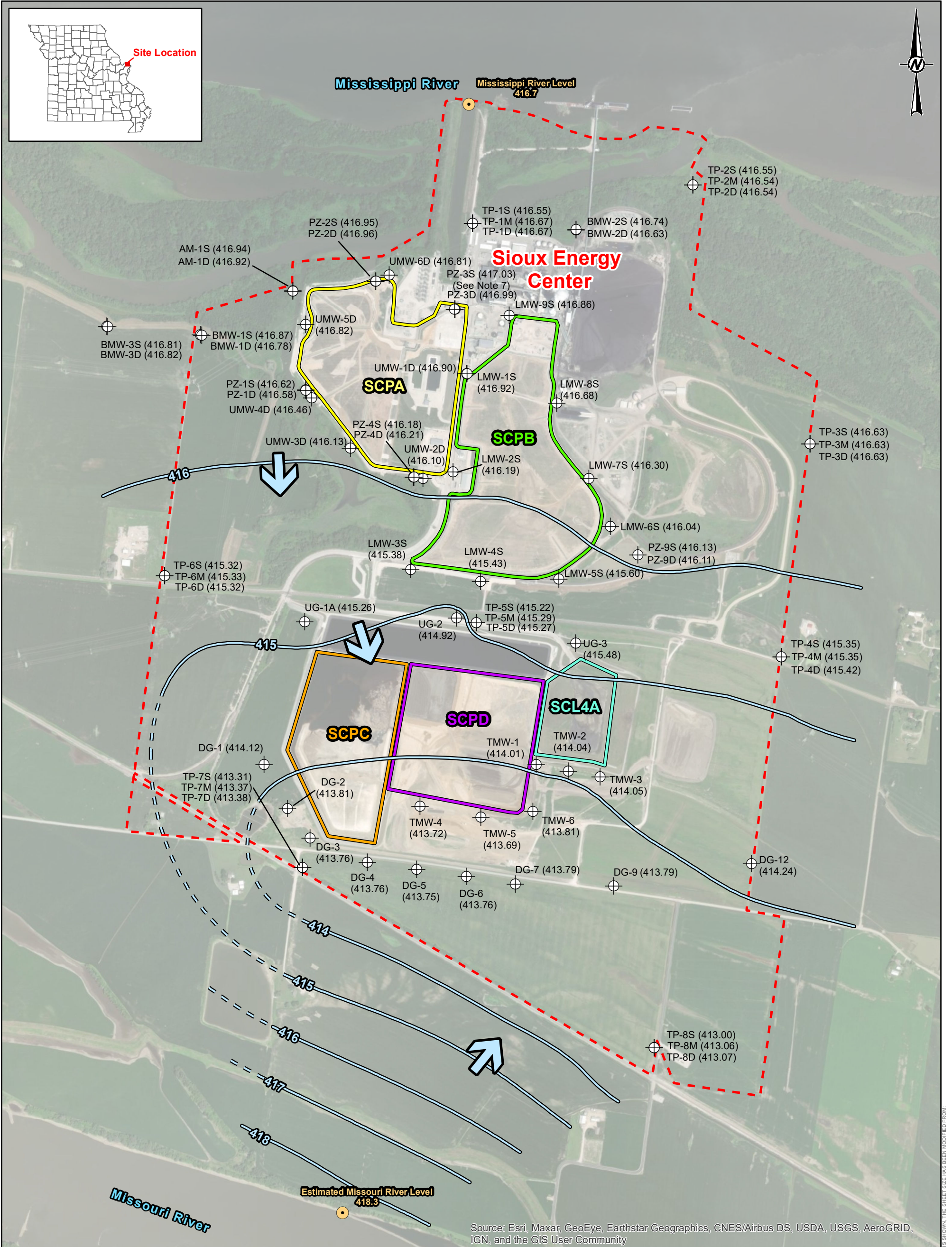
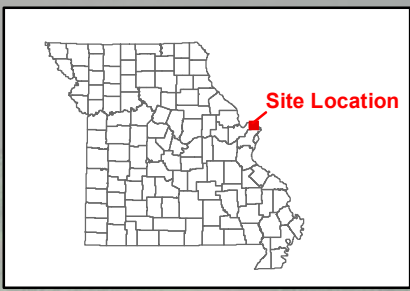
- NOTES**
- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
 - 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
 - 3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
 - 4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
 - 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
 - 6.) WFGD - WET FLU GAS DESULFURIZATION.

- REFERENCES**
- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
 - 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
 - 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI SIOUX ENERGY CENTER			
PROJECT		YYYY-MM-DD 2022-12-27	
CCR GROUNDWATER MONITORING PROGRAM		PREPARED	GTM
TITLE		DESIGN	JSI
FEBRUARY 7, 2022 POTENTIOMETRIC SURFACE MAP		REVIEW	SSS
CONSULTANT		APPROVED	MNH
		PROJECT No. 153140604	PHASE 0003
		FIGURE C1	

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

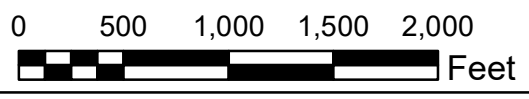
- LEGEND**
- - - Sioux Energy Center Property Boundary
 - CCR Units**
 - SCPA - Bottom Ash Surface Impoundment
 - SCPB - Fly Ash Surface Impoundment
 - SCPC - WFGD Surface Impoundment
 - SCL4A - Dry CCR Disposal Area
 - Proposed SCPD - WFGD Surface Impoundment

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Ground/Surface Water Measurement Locations**

 - River Gauge Location
 - ⊕ Monitoring Well or Piezometer
 - ➔ Groundwater Flow Direction

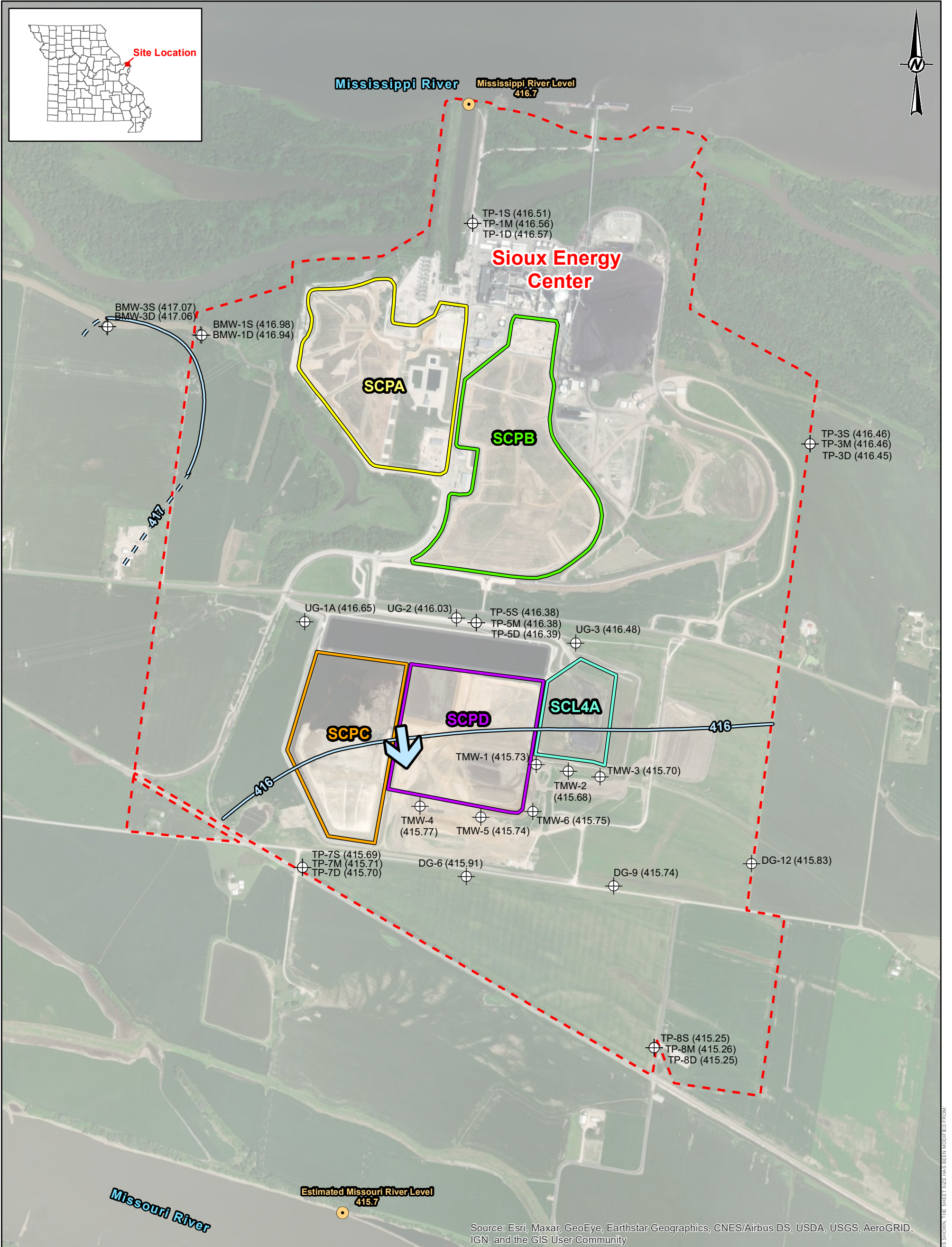
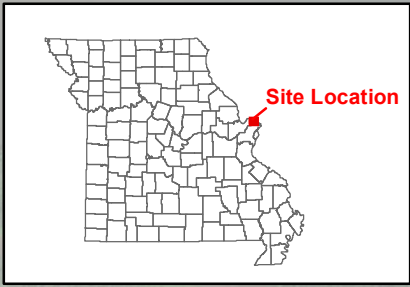
- NOTES**
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 - 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
 - 3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
 - 4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
 - 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
 - 6.) WFGD - WET FLUE GAS DESULFURIZATION.
 - 7.) PZ-3S NOT USED IN POTENTIOMETRIC SURFACE MAP.

- REFERENCES**
- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
 - 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
 - 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI SIOUX ENERGY CENTER			
PROJECT		YYYY-MM-DD 2022-12-27	
CCR GROUNDWATER MONITORING PROGRAM		PREPARED	JSI
TITLE		DESIGN	JSI
MARCH 28, 2022 POTENTIOMETRIC SURFACE MAP		REVIEW	BTT
CONSULTANT		APPROVED	MNH
		PROJECT No.	153140604
		PHASE	0003
		FIGURE C2	

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

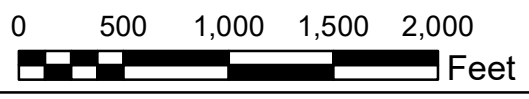
LEGEND	
	Sioux Energy Center Property Boundary
CCR Units	
	SCPA - Bottom Ash Surface Impoundment
	SCPB - Fly Ash Surface Impoundment
	SCPC - WFGD Surface Impoundment
	SCL4A - Dry CCR Disposal Area
	Proposed SCPD - WFGD Surface Impoundment
	Groundwater Elevation Contour (FT MSL)
	Inferred Groundwater Elevation Contour (FT MSL)
	River Gauge Location
	Monitoring Well or Piezometer
	Groundwater Flow Direction

NOTES

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- 3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
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- 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
- 6.) WFGD - WET FLUE GAS DESULFURIZATION.

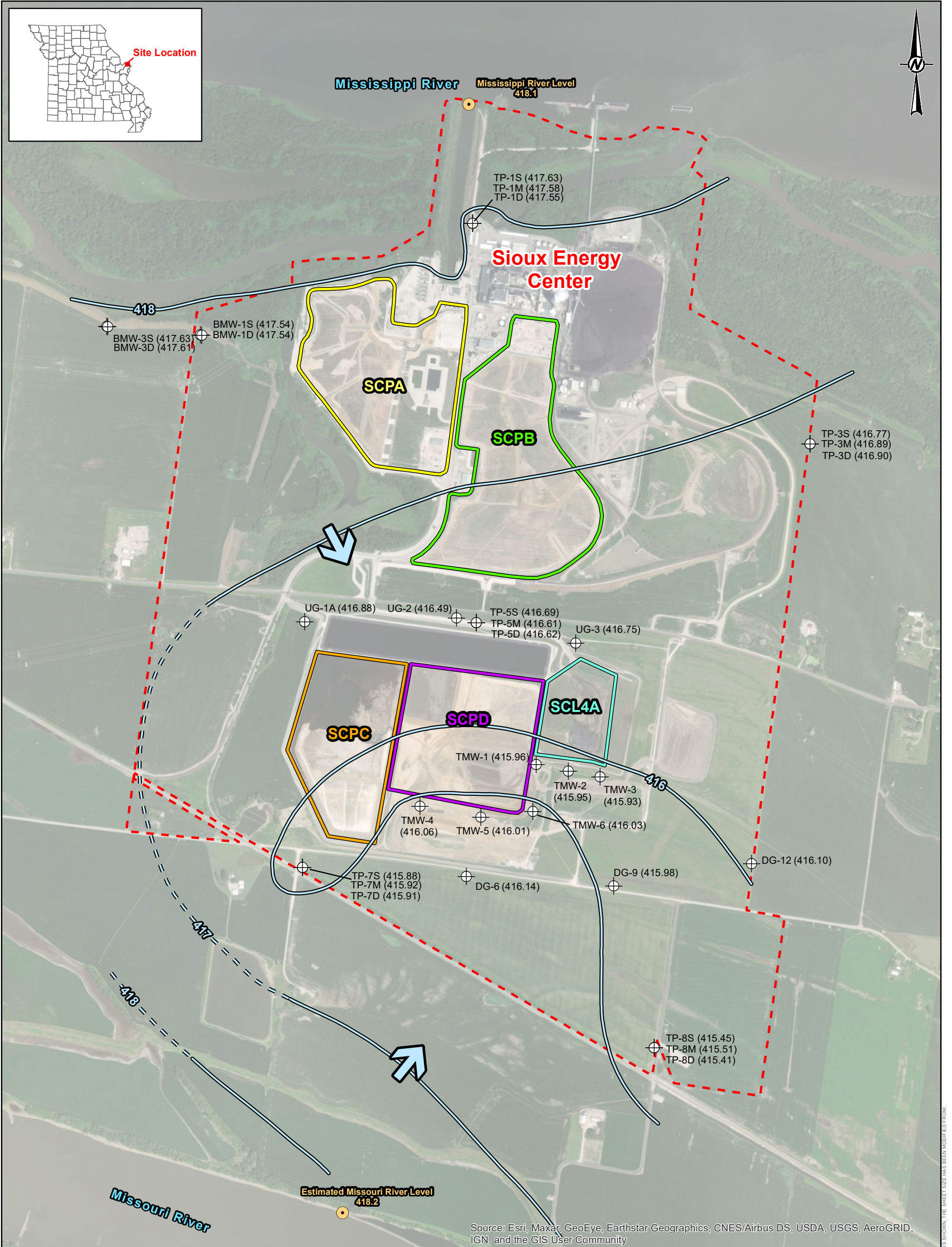
REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT												
AMEREN MISSOURI SIOUX ENERGY CENTER												
PROJECT												
CCR GROUNDWATER MONITORING PROGRAM												
TITLE												
APRIL 19, 2022 POTENTIOMETRIC SURFACE MAP												
CONSULTANT												
PROJECT No. 153140604												
PHASE 0003B		<table border="1"> <tr> <td>YYYY-MM-DD</td> <td>2023-01-19</td> </tr> <tr> <td>PREPARED</td> <td>JSI</td> </tr> <tr> <td>DESIGN</td> <td>JSI</td> </tr> <tr> <td>REVIEW</td> <td>BTT</td> </tr> <tr> <td>APPROVED</td> <td>MNH</td> </tr> </table>	YYYY-MM-DD	2023-01-19	PREPARED	JSI	DESIGN	JSI	REVIEW	BTT	APPROVED	MNH
YYYY-MM-DD	2023-01-19											
PREPARED	JSI											
DESIGN	JSI											
REVIEW	BTT											
APPROVED	MNH											
FIGURE C3												

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

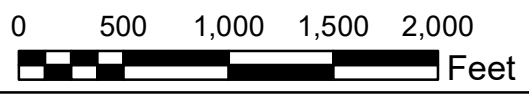
LEGEND	
	Sioux Energy Center Property Boundary
CCR Units	
	SCPA - Bottom Ash Surface Impoundment
	SCPB - Fly Ash Surface Impoundment
	SCPC - WFGD Surface Impoundment
	SCL4A - Dry CCR Disposal Area
	Proposed SCPD - WFGD Surface Impoundment
	Groundwater Elevation Contour (FT MSL)
	Inferred Groundwater Elevation Contour (FT MSL)
	River Gauge Location
	Monitoring Well or Piezometer
	Groundwater Flow Direction

NOTES

- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
- 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
- 3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
- 4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
- 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
- 6.) WFGD - WET FLUE GAS DESULFURIZATION.

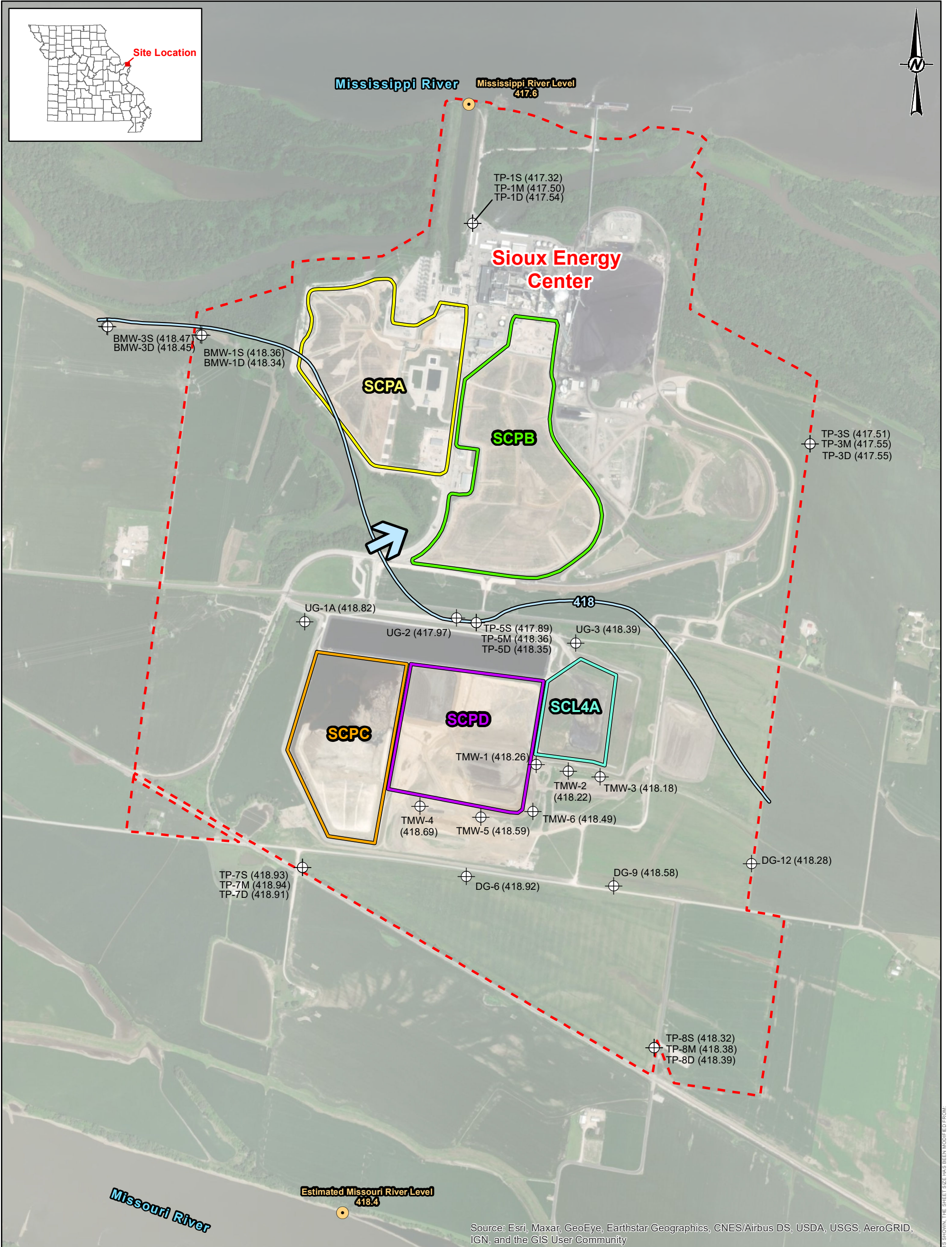
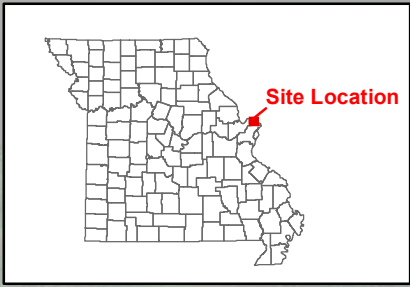
REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI		SIOUX ENERGY CENTER	
PROJECT		CCR GROUNDWATER MONITORING PROGRAM	
TITLE			
MAY 2, 2022 POTENTIOMETRIC SURFACE MAP			
CONSULTANT		YYYY-MM-DD	2023-01-19
		PREPARED	GTM
		DESIGN	JSI
		REVIEW	JSI
		APPROVED	MNH
PROJECT No.	PHASE		
153140604	0003B		
			FIGURE
			C4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

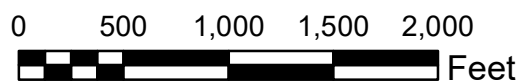
LEGEND	
	Sioux Energy Center Property Boundary
CCR Units	
	SCPA - Bottom Ash Surface Impoundment
	SCPB - Fly Ash Surface Impoundment
	SCPC - WFGD Surface Impoundment
	SCL4A - Dry CCR Disposal Area
	Proposed SCPD - WFGD Surface Impoundment
	Groundwater Elevation Contour (FT MSL)
	Inferred Groundwater Elevation Contour (FT MSL)
Ground/Surface Water Measurement Locations	
	River Gauge Location
	Monitoring Well or Piezometer
	Groundwater Flow Direction

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- 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
- 6.) WFGD - WET FLUE GAS DESULFURIZATION.

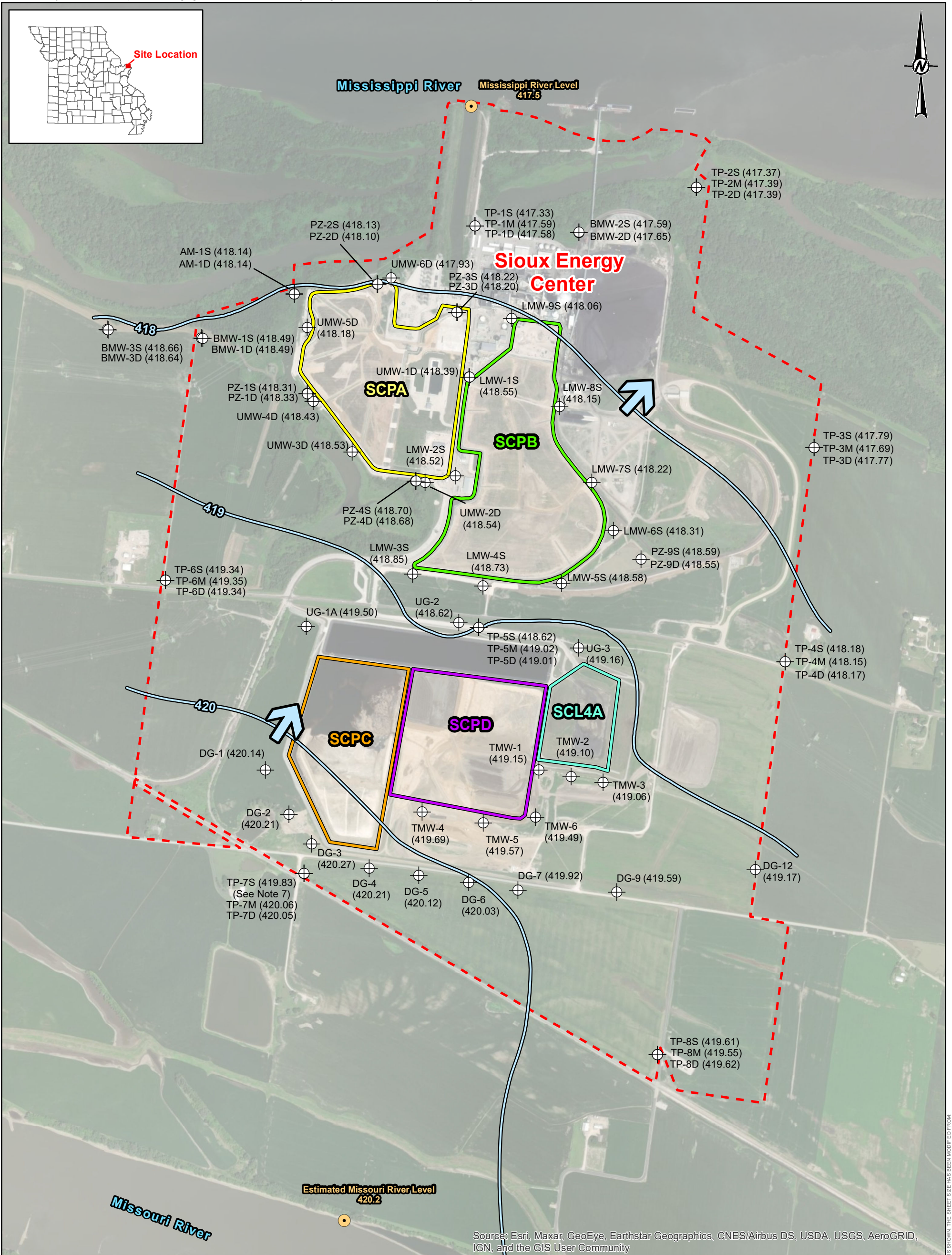
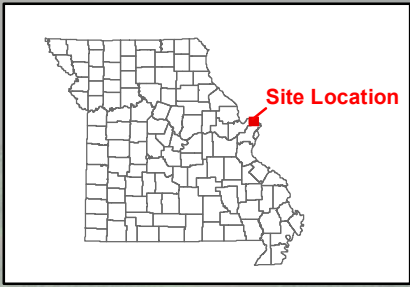
REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI		SIOUX ENERGY CENTER	
PROJECT		CCR GROUNDWATER MONITORING PROGRAM	
TITLE			
MAY 16, 2022 POTENTIOMETRIC SURFACE MAP			
CONSULTANT		YYYY-MM-DD	2022-12-28
		PREPARED	GTM
		DESIGN	JSI
		REVIEW	ETF
		APPROVED	MNH
PROJECT No.	PHASE		
153140604	0003B		
			FIGURE
			C5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- LEGEND**
- - - Sioux Energy Center Property Boundary
 - CCR Units**
 - SCPA - Bottom Ash Surface Impoundment
 - SCPB - Fly Ash Surface Impoundment
 - SCPC - WFGD Surface Impoundment
 - SCL4A - Dry CCR Disposal Area
 - Proposed SCPD - WFGD Surface Impoundment

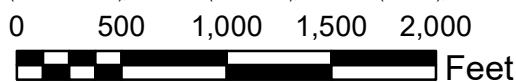
- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Ground/Surface Water Measurement Locations**
- River Gauge Location
- ⊕ Monitoring Well or Piezometer
- ➔ Groundwater Flow Direction

NOTES

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- 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
- 6.) WFGD - WET FLUE GAS DESULFURIZATION.
- 7.) TP-7S NOT USED IN POTENTIOMETRIC SURFACE MAP CONTOURING.

REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT
**AMEREN MISSOURI
SIOUX ENERGY CENTER**



PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
JUNE 6, 2022 POTENTIOMETRIC SURFACE MAP

CONSULTANT

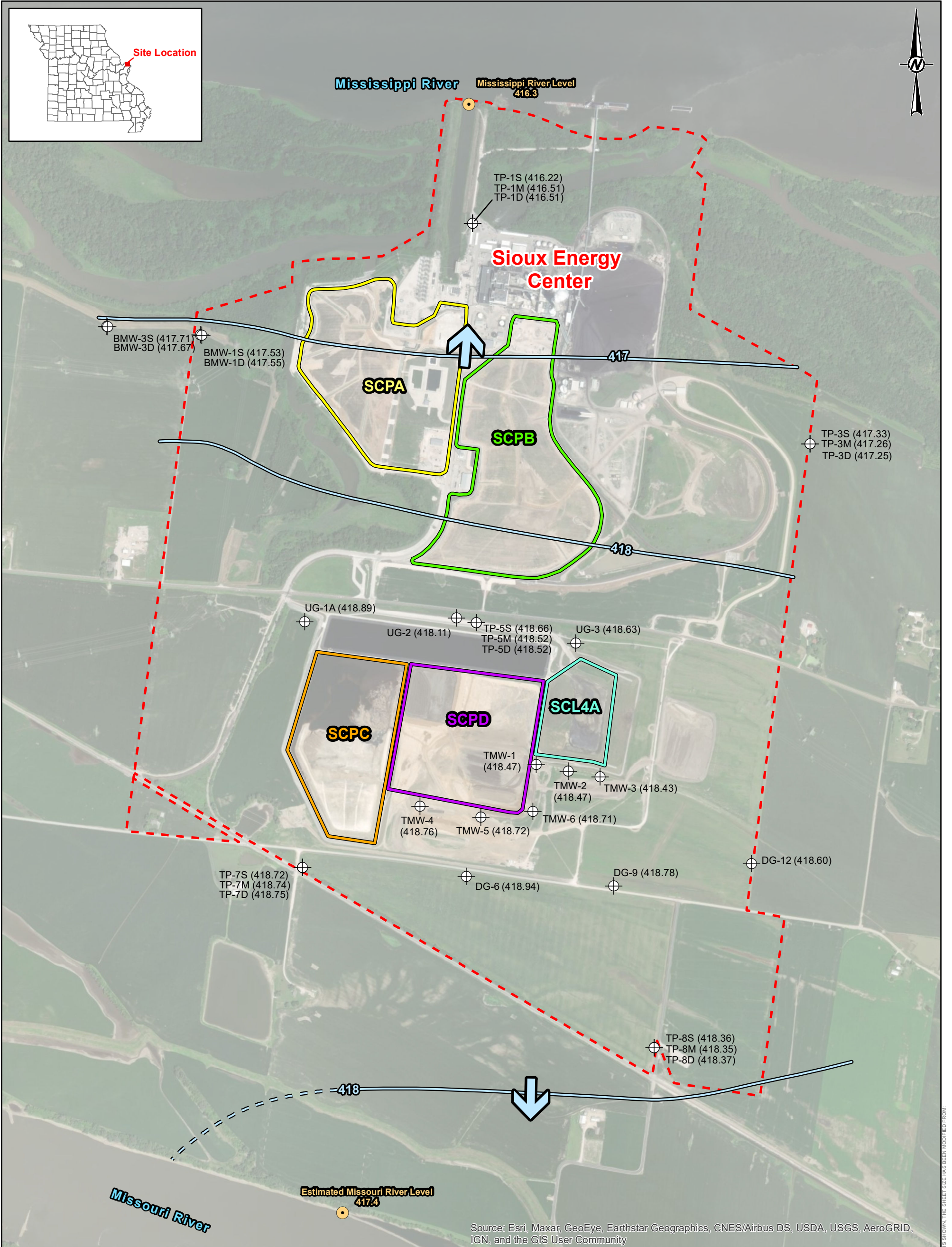
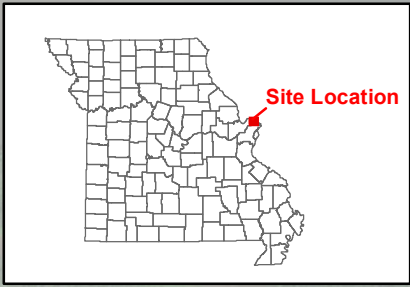


YYYY-MM-DD	2022-12-27
PREPARED	GTM
DESIGN	JSI
REVIEW	ETF
APPROVED	MNH

PROJECT No.
153140604

PHASE
0003

FIGURE
C6



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

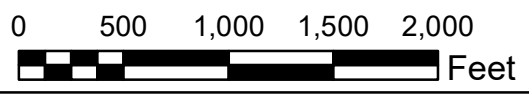
LEGEND	
	Sioux Energy Center Property Boundary
CCR Units	
	SCPA - Bottom Ash Surface Impoundment
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	SCPC - WFGD Surface Impoundment
	SCL4A - Dry CCR Disposal Area
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Ground/Surface Water Measurement Locations	
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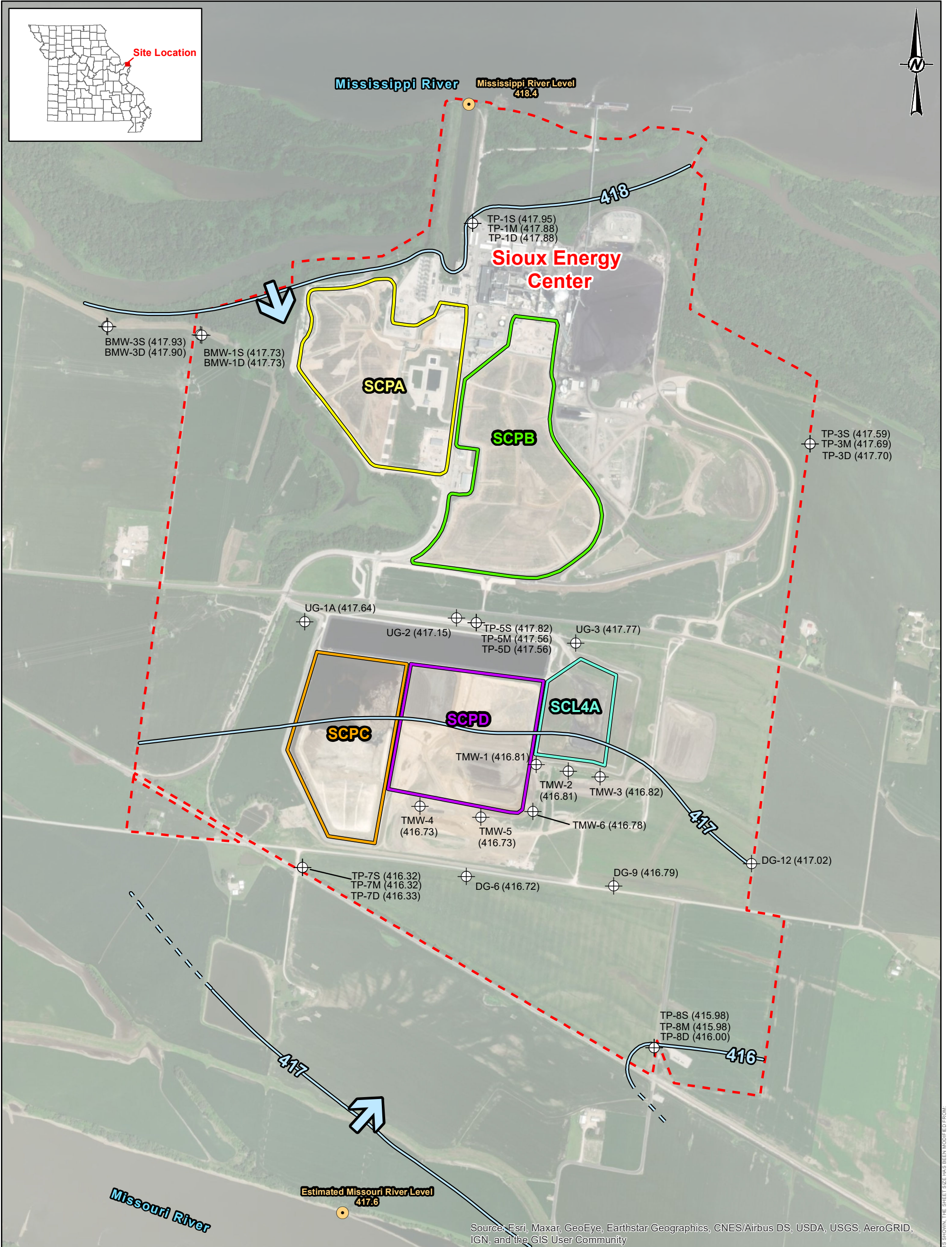
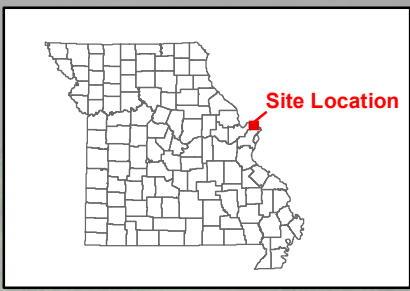
REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT		
AMEREN MISSOURI SIOUX ENERGY CENTER		
PROJECT		
CCR GROUNDWATER MONITORING PROGRAM		
TITLE		
JUNE 20, 2022 POTENTIOMETRIC SURFACE MAP		
CONSULTANT		YYYY-MM-DD 2023-01-04
		PREPARED GTM
		DESIGN JSI
		REVIEW BTT
		APPROVED MNH
PROJECT No.	PHASE	FIGURE
153140604	0003B	C7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



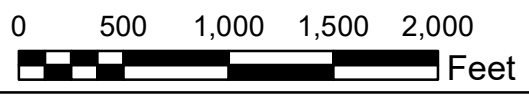
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- LEGEND**
- - - Sioux Energy Center Property Boundary
 - CCR Units**
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- Groundwater Elevation Contour (FT MSL)
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- River Gauge Location
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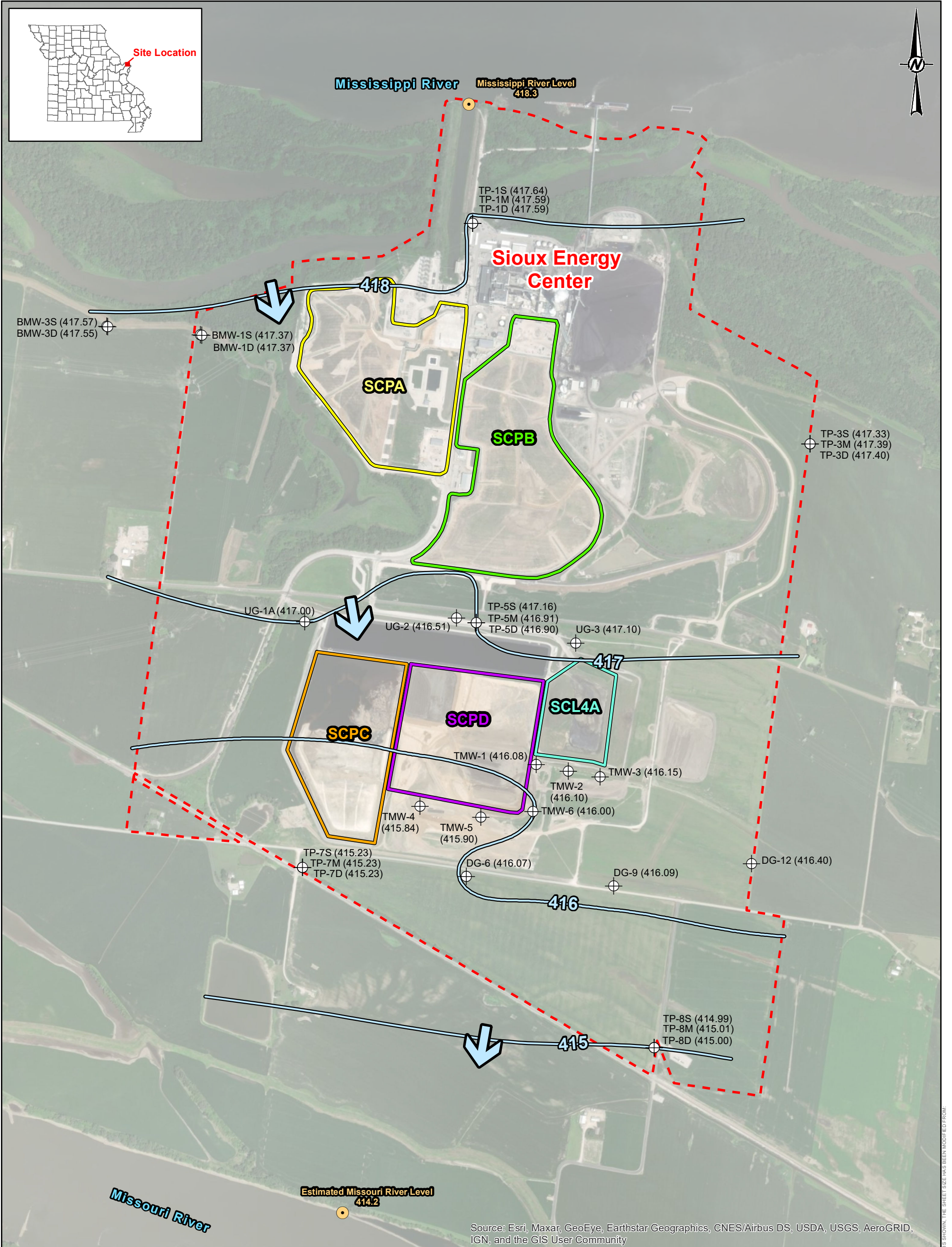
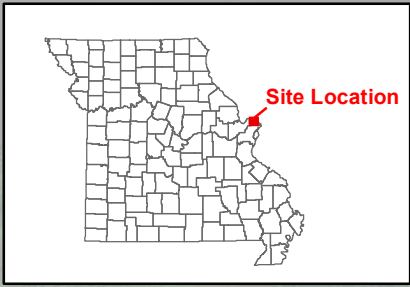
- NOTES**
- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
 - 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
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- REFERENCES**
- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
 - 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
 - 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI		SIOUX ENERGY CENTER	
PROJECT		CCR GROUNDWATER MONITORING PROGRAM	
TITLE			
JULY 13, 2022 POTENTIOMETRIC SURFACE MAP			
CONSULTANT		YYYY-MM-DD	2023-01-19
		PREPARED	BTT
		DESIGN	JSI
		REVIEW	GTM
		APPROVED	MNH
PROJECT No.	PHASE		
153140604	0003B		
			FIGURE C8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



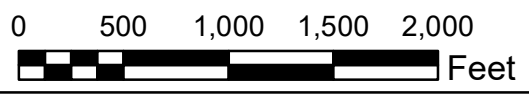
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- LEGEND**
- Sioux Energy Center Property Boundary
 - CCR Units**
 - SCPA - Bottom Ash Surface Impoundment
 - SCPB - Fly Ash Surface Impoundment
 - SCPC - WFGD Surface Impoundment
 - SCL4A - Dry CCR Disposal Area
 - Proposed SCPD - WFGD Surface Impoundment

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Ground/Surface Water Measurement Locations**
- River Gauge Location
- ⊕ Monitoring Well or Piezometer
- ↘ Groundwater Flow Direction

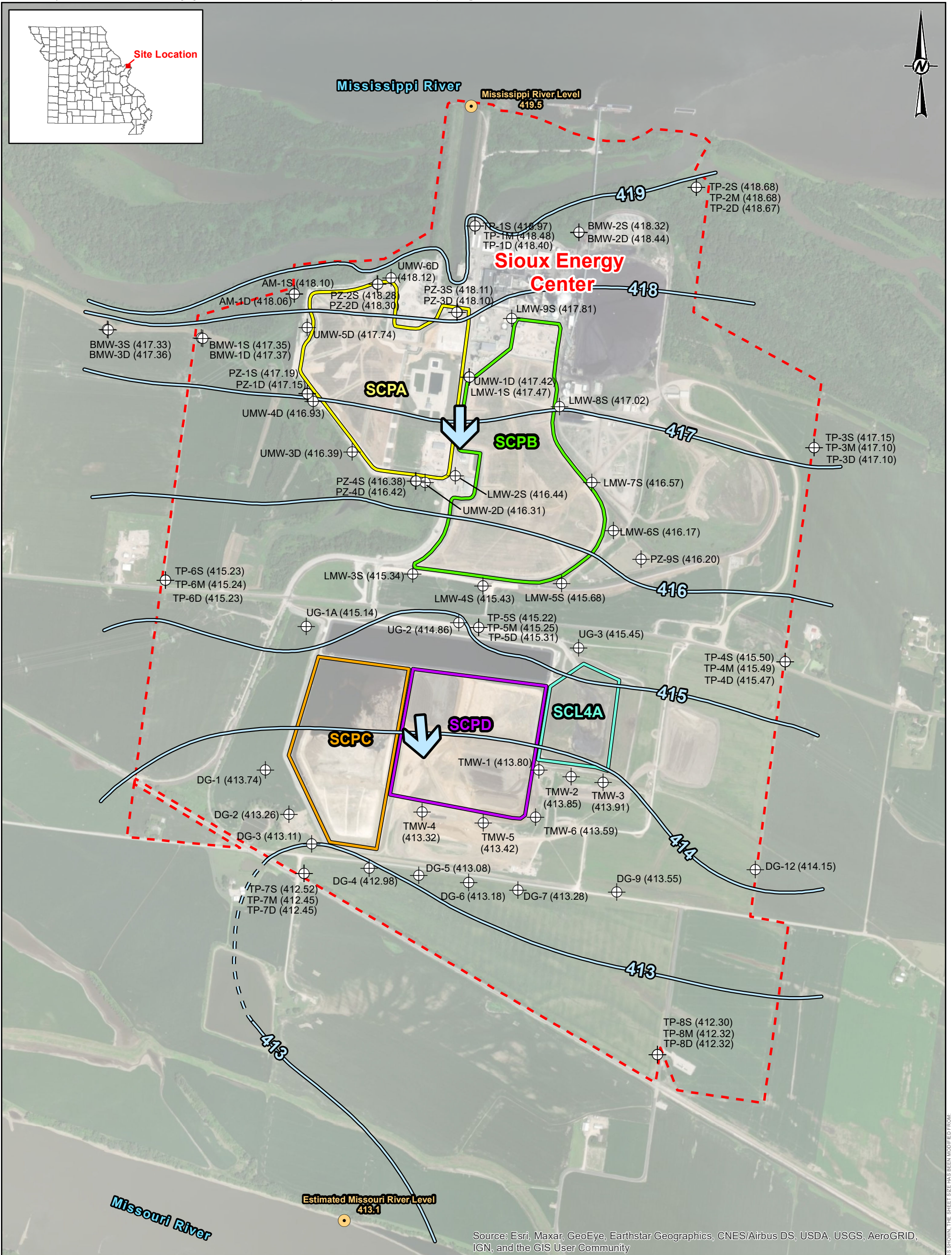
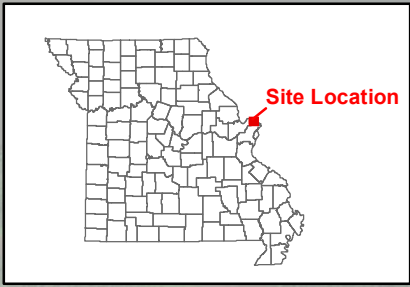
- NOTES**
- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
 - 2.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FT MSL).
 - 3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
 - 4.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY UNITED STATES GEOLOGICAL SURVEY (USGS) RIVER GAUGING LOCATIONS.
 - 5.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
 - 6.) WFGD - WET FLUE GAS DESULFURIZATION.

- REFERENCES**
- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
 - 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
 - 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT			
AMEREN MISSOURI SIOUX ENERGY CENTER			
PROJECT		YYYY-MM-DD	
CCR GROUNDWATER MONITORING PROGRAM		2022-12-28	
TITLE		PREPARED	
JULY 25, 2022 POTENTIOMETRIC SURFACE MAP		DESIGN	JSI
CONSULTANT		REVIEW	EMS
		APPROVED	MNH
PROJECT No. 153140604	PHASE 0003B	FIGURE C9	

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

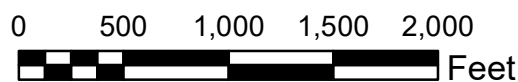
- Sioux Energy Center Property Boundary
- CCR Units**
 - SCPA - Bottom Ash Surface Impoundment
 - SCPB - Fly Ash Surface Impoundment
 - SCPC - WFGD Surface Impoundment
 - SCL4A - Dry CCR Disposal Area
 - Proposed SCPD - WFGD Surface Impoundment
- Groundwater Elevation Contour (FT MSL)**
 - Groundwater Elevation Contour (FT MSL)
 - Inferred Groundwater Elevation Contour (FT MSL)
- Ground/Surface Water Measurement Locations**
 - River Gauge Location
 - Monitoring Well or Piezometer
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NOTES

- 1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
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- 6.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCES

- 1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
- 2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
- 3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).



CLIENT
AMEREN MISSOURI SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
OCTOBER 17, 2022 POTENTIOMETRIC SURFACE MAP

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-12-27
PREPARED	ETF
DESIGN	JSI
REVIEW	RJF
APPROVED	MNH

PROJECT No. 153140604 **PHASE** 0003B

FIGURE C10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 11in



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