2020 Annual Groundwater Monitoring and Corrective Action Report

RCPA Surface Impoundment, Rush Island Energy Center, Jefferson County, Missouri, USA

Submitted to:

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1.0 EXECUTIVE SUMMARY AND STATUS OF THE RCPA GROUNDWATER MONITORING PROGRAM

This annual report was developed to meet the requirements of United States Environmental Protection Agency (USEPA) 40 CFR Part 257 “Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule” (the CCR Rule). The CCR Rule requires owners or operators of existing CCR units to produce an Annual Groundwater Monitoring and Corrective Action Report (Annual Report) each year (§ 257.90(e)). Ameren Missouri (Ameren) has determined that the RCPA Coal Combustion Residuals (CCR) Surface Impoundment at the Rush Island Energy Center (RIEC) is subject to the requirements of the CCR Rule. This Annual Report for the RCPA describes CCR Rule groundwater monitoring activities from January 1, 2020 through December 31, 2020, including verification results related to late 2019 sampling.

Throughout 2020, the RCPA has been in Corrective Action Monitoring with Detection and Assessment Monitoring continuing concurrently. Semi-annual groundwater sampling associated with Detection Monitoring has been ongoing since it was initiated on October 17, 2017 as required by the CCR Rule. As a part of Detection Monitoring, statistical evaluations are completed after each sampling event to determine if there are any values at a Statistically Significant Increase (SSI) over background. SSIs have been determined for each sampling event and a summary of the SSIs for the past year are provided in **Table 1**.

The Assessment Monitoring program was established at the RCPA on April 15, 2018. Since that time, groundwater sampling and statistical evaluations have been completed semi-annually to determine if there are any values at a Statistically Significant Level (SSL) over the site-specific Groundwater Protection Standard (GWPS). On October 11, 2018, it was determined that Arsenic and Molybdenum were present at SSLs. A summary of SSLs for the past year is provided in **Table 1**.

Table 1 – Summary of 2020 RCPA Sampling Events, Previous Year Verification, and Statistical Evaluations

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt Date	Parameters Collected	Verified SSIs	SSLs	SSI & SSL Determination Date
November 2019 Sampling Event	Detection & Assessment Monitoring, November 8-11, 2019	December 9, 2019	Appendix III, Detected Appendix IV (See Note 1), & Major Cations and Anions	**pH:** MW-1, MW-2, MW-3, P19I **Boron:** MW-1, MW-2, MW-3, MW-4, MW-6, MW-7(R), P19I **Chloride:** MW-7(R) **Fluoride:** MW-1, MW-2, MW-3, MW-4, P19I **Sulfate:** MW-1, MW-2, MW-3, MW-4, P-19I **TDS:** MW-2, P19I	**Arsenic:** MW-2, MW-3, P19I **Molybdenum:** MW-2, MW-3, MW-7(R), P19I	March 4, 2020
	Verification Sampling, January 9, 2020	January 17, 2020	Detected Appendix III parameters (See Note 2)			
April 2020 Sampling Event	Detection & Assessment Monitoring, April 6-9, 2020	May 4, 2020	Appendix III, Appendix IV, & Major Cations and Anions	**pH:** MW-1, MW-2, MW-3 **Boron:** MW-1, MW-2, MW-3, MW-4, MW-6, MW-7(R) **Fluoride:** MW-1, MW-2, MW-3, MW-4, MW-7(R) **Sulfate:** MW-1, MW-2, MW-3, MW-4	**Arsenic:** MW-2, MW-3, MW-7(R) **Molybdenum:** MW-2, MW-3, MW-7(R)	July 31, 2020
	There were no new exceedances for the April 2020 event; therefore, no Verification Sampling was necessary.					

Event Name	Type of Event and Sampling Dates	Laboratory Analytical Data Receipt Date	Parameters Collected	Verified SSIs	SSLs	SSI & SSL Determination Date
October 2020 Sampling Event	Detection & Assessment Monitoring, October 26-28, 2020	November 24, 2020	Appendix III, Detected Appendix IV (See Note 3), & Major Cations and Anions	To be determined after statistical analysis and Verification Sampling are completed in 2021.		

Notes:

1) Testing was completed for Appendix IV analytes that were detected above the Practical Quantitation Limit (PQL) during the July-September 2019 sampling event.
2) Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.
3) Testing was completed for Appendix IV analytes that were detected above the PQL during the April 2020 sampling event.
4) SSI – Statistically Significant Increase.
5) SSL – Statistically Significant Level.
6) TDS – Total Dissolved Solids.

On January 9, 2019, Ameren initiated its Corrective Measures Assessment (CMA) and posted its CMA report on May 20, 2019. A public meeting was held on May 28, 2019 and responses to public comments are posted on Ameren's CCR website. On August 30, 2019, Ameren published its "Remedy Selection Report – 40 CFR § 257.97 Rush Island, Labadie, Sioux and Meramec CCR Basins" (Remedy Selection Report) that identified source control through installation of a low permeability cover system and use of Monitored Natural Attenuation (MNA) as its chosen corrective action remedial plan. The Remedy Selection Report's remedial plan consists of two phases as follows:

1) Source control, stabilization and containment of CCR by installation of a low permeability geomembrane cap (a minimum 1 x 10^{-7} centimeters per second (cm/sec) versus 1 x 10^{-5} cm/sec required by the CCR Rule).

2) Once source control is achieved, monitor the natural attenuation of groundwater concentrations to address limited and localized CCR-related impacts. Ongoing monitoring and modelling evaluations will document that concentrations are decreasing as modelled. MNA occurs due to naturally occurring processes within the aquifer.

Ameren commenced Phase 1 of the corrective action remedial plan in August 2019 by initiating closure at the RCPA. Closure of the RCPA was completed on December 15, 2020 thereby transitioning the RCPA into the post-closure care requirements of the CCR Rule. As outlined in §257.104 (Post-closure Care Requirements) of the CCR Rule, the monitoring system and programs must be maintained for at least 30 years. After 30 years, if the unit is in Detection Monitoring, the unit may cease groundwater sampling activities, otherwise post-closure care must continue until the unit can return to Detection Monitoring in accordance with section §257.95 (Assessment Monitoring Program). Phase 2 of the corrective measures remedial plan as outlined in the Remedy Selection Report will commence in 2021, with the first MNA sampling event and associated statistical analyses planned for the second quarter of 2021.

In 2021, Ameren plans to permit and install a pilot groundwater treatment system that is designed to accelerate the timeframe for attaining compliance with applicable groundwater standards. If the pilot groundwater treatment system is considered successful, Ameren intends to expand the system to further facilitate remediation at the site.

In addition to the Remedy Selection Report the CCR Rule outlines that, at a minimum, Corrective Action Monitoring must meet the requirements of an Assessment Monitoring program under §257.95 (Assessment Monitoring Program). Therefore, to comply with the requirements of the CCR Rule, three (3) baseline sampling events were completed in 2020 for the Corrective Action Monitoring Well Network.

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2.0 INSTALLATION OR DECOMMISSIONING OF MONITORING WELLS

There are currently two (2) different networks used for monitoring the RCPA, the monitoring well network established under §257.91 for Detection and Assessment Monitoring and the network established under §257.98 for Corrective Action Monitoring, see **Figure 1**. No new wells were installed or decommissioned in 2020, however, based on further evaluations of the site, P19I was removed from the Detection and Assessment Groundwater Monitoring Network after the November 2019 sampling event and added to the Corrective Action Monitoring Well Network prior to the April 2020 sampling event. A summary of the well construction details for monitoring wells in both networks is provided in **Table 2**. Further details including well construction diagrams for these wells are provided in previous annual reports for the RCPA.

3.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

The following sections review the sampling events completed for the RCPA CCR Unit in 2020. **Tables 3** and **4** provide a summary of the groundwater samples collected in 2020 including the number of samples, the date of the sample collection, and the monitoring program for which the samples were collected. **Appendix A** provides laboratory analytical data for CCR Rule sampling events.

3.1 Detection Monitoring Program

A Detection Monitoring sampling event was completed November 8-11, 2019. Verification sampling and the statistical analysis to evaluate for SSIs for the November 2019 event were not completed until 2020 and are therefore included in this report. Detections of Appendix III analytes triggered a Verification sampling event, which was completed on January 9, 2020. **Table 5** summarizes the results and the statistical analysis of the November 2019 Detection Monitoring event.

Detection Monitoring samples were collected April 6-9, 2020, and testing was completed for all Appendix III analytes, as well as major cations and anions. As discussed above, prior to this event, P19I was removed from the Detection and Assessment Monitoring Well Networks and added to the Corrective Action Monitoring Well Network. Statistical analysis of the data determined SSIs. There were no new exceedances for the April 2020 sampling event; therefore, no Verification sampling was necessary. **Table 6** summarizes the results and the statistical analysis of the April 2020 Detection Monitoring event.

A Detection Monitoring sampling event was completed October 26-28, 2020 and testing was performed for all Appendix III analytes, as well as major cations and anions. Statistical analyses to evaluate for SSIs in the October 2020 data were not completed in 2020 and will be included in the 2021 Annual Report. **Table 7** summarizes the results of the October 2020 Detection Monitoring event.

3.2 Assessment Monitoring Program

An Assessment Monitoring sampling event was completed November 8-11, 2019 and testing was completed for Appendix IV parameters detected during the July-September 2019 sampling event. The statistical evaluation for this event was completed in 2020 and is included in this report. **Table 8** summarizes the results of the November 2019 Assessment Monitoring event. Based on the analysis, two (2) new SSLs were identified in the November 2019 sampling event for Arsenic and Molybdenum at monitoring well P19I. The results from this analysis and a table that displays the site-specific GWPS are provided in **Appendix B**. The SSLs for the RCPA for the November 2019 sampling event are:

- Arsenic at MW-2, MW-3, and P19I

- Molybdenum at MW-2, MW-3, MW-7(R), and P19I

An Assessment Monitoring sampling event was completed April 6-9, 2020 and testing was completed for all Appendix IV analytes. As discussed above, prior to this event, P19I was removed from the Detection and Assessment Monitoring Well Network and added to the Corrective Action Monitoring Well Network. **Table 9** summarizes the results of the April 2020 Assessment Monitoring event and the statistical analysis for this event is provided in **Appendix C**. Based on the analysis, one (1) new SSL was identified for Arsenic at MW-7(R). Arsenic was an SSL at MW-7(R) in the events prior to the November 2019 sampling event. The SSLs for the RCPA for the April 2020 sampling event are:

- Arsenic at MW-2, MW-3, and MW-7(R)
- Molybdenum at MW-2, MW-3, and MW-7(R)

An Assessment Monitoring sampling event was completed October 26-28, 2020 and testing was completed for Appendix IV analytes that were detected above the Practical Quantitation Limit (PQL) during the April 2020 sampling event from either the Assessment or Corrective Action Groundwater Monitoring Well Networks. **Table 10** summarizes the results of the October 2020 Assessment Monitoring event; however, statistical analyses to evaluate SSLs were not completed in 2020. Results of the statistical evaluation will be included in the 2021 Annual Report.

3.2 Corrective Action Monitoring Program

The initial baseline Corrective Action sampling event was completed April 6-9, 2020 and testing was completed for all Appendix IV analytes, as well as other selected MNA parameters, and major cations and anions. A summary of the April 2020 Corrective Action sampling event results is provided in **Table 11**. A Corrective Action sampling event was completed May 19-22, 2020 and testing was completed for all Appendix III analytes, detected Appendix IV analytes (above the PQL) from the April 2020 sampling event from either the Assessment or Corrective Action Groundwater Monitoring Well Networks, and major cations and anions. The results of the May 2020 Corrective Action sampling event are provided in **Table 12**.

A Corrective Action sampling event was completed October 26 - November 23, 2020 and testing was completed for Appendix III analytes, detected Appendix IV parameters from the April 2020 sampling event, as well as major cations and anions. **Table 13** summarizes the results of the October-November 2020 Corrective Action sampling event.

Supplemental Corrective Action sampling events were also completed in 2020 for statistical data collection. These supplemental events were completed because a minimum of four (4) values are required, and eight (8) are recommended by the Unified Guidance (USEPA, 2009), for statistical analysis. Therefore, prior to the initiation of Phase 2 of the corrective action remedial plan as outlined in the Remedy Selection Report, a minimum of eight (8) sample results should be collected for parameters present at an SSL (Molybdenum and Arsenic) for monitoring wells within the Corrective Action Groundwater Monitoring Well Network. Results from this sampling are provided in **Table 14**.

3.3 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 water level of the adjacent Mississippi 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. Overall, based on the potentiometric surface maps, a general flow direction from the west (bluffs area) to the east (Mississippi River) is observed under normal river conditions. However, during periods of high river levels, groundwater flow can temporarily reverse. During these times of high river stage and temporary flow direction changes, horizontal groundwater gradients generally decrease, and little net movement of groundwater occurs.

Groundwater flow direction and hydraulic gradient were estimated for the monitoring wells at the RIEC using commercially available software. Results from this assessment indicate that while groundwater flow direction is variable and gradients are relatively flat, the overall net groundwater flow at the RCPA was toward the northeast or towards the Mississippi River. Horizontal gradients calculated by the program range from 0.00004 to 0.002 feet/foot with an estimated net annual groundwater movement of approximately 20 feet in the prevailing downgradient direction.

3.4 Sampling Issues

Prior to the April 2020 sampling event, Golder performed a post-flood monitoring well inspection on well P16S at the RIEC because the monitoring well had been inactive for several years and determined that the well had been impacted by flooding from the Mississippi River. The monitoring well was re-developed on April 3, 2020 to remove floodwater impacts to the well prior to groundwater elevation measurements or the collection of groundwater samples. After successful re-development P16S was returned to service.

Piezometer P01S is used for water level measurements for Corrective Action. During the April and May 2020 sampling events and associated groundwater elevation measurements, access to P01S was not feasible due to elevated surface water levels from the Mississippi River and Isle du Bois Creek. Therefore, no groundwater elevation measurements were collected during these events from P01S.

During the August and October additional Corrective Action events, it was noted that P31S could not be sampled due to low groundwater elevations at this location. Two (2) make-up sampling events are scheduled to be completed in early 2021 prior to the initial Phase 2 Corrective Action sampling event.

No other notable sampling issues were encountered at the RCPA in 2020.

4.0 ACTIVITIES PLANNED FOR 2021

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

The first Corrective Action sampling event associated with Phase 2 of the corrective measures remedial plan is scheduled to be completed in the second quarter of 2021. This event will be followed by a second semi-annual event scheduled for the fourth quarter of 2021. Monitoring and statistical evaluation of MNA will be completed in accordance with the corrective measures remedial plan discussed in the Remedy Selection Report.

Tables

Table 2
Summary of Well Construction Details
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

Monitoring Well ID	Installation Date	Location		Top of Casing Elevation	Ground Surface Elevation	Top of Screen Elevation	Base of Well	Total Depth
		Northing[1]	Easting[1]	(FT MSL)[2]	(FT MSL)[2]	(FT MSL)[2]	(FT MSL)[2]	(FT BGS)[3]
CCR RULE COMPLIANCE NETWORK								
MW-1	10/31/2015	835384.2	889832.5	395.52	393.5	320.7	310.5	83.0
MW-2	11/1/2015	834261.5	890364.1	393.87	391.7	319.5	309.3	82.4
MW-3	10/31/2015	833178.4	890892.7	391.38	389.2	319.1	308.9	80.3
MW-4	10/30/2015	831647.5	890830.5	392.78	390.8	310.9	300.7	90.1
MW-5	10/29/2015	831994.9	889984.5	390.36	388.0	333.0	327.8	60.2
MW-6	10/28/2015	833111.0	888977.0	402.71	401.1	346.4	341.2	59.8
MW-7(R)	9/11/2019	834501.4	888496.4	408.22	406.0	318.7	308.6	97.4
MW-B1	10/28/2015	837602.1	887903.9	411.61	409.6	319.8	309.6	100.0
MW-B2	10/27/2015	837801.7	885337.2	397.85	395.9	318.3	308.1	87.9
CORRECTIVE ACTION MONITORING WELL NETWORK								
P05S	12/5/2012	832317.6	889749.7	392.50	390.1	365.6	345.6	44.5
P10S	12/4/2012	834545.1	888099.0	407.23	404.8	375.8	355.8	49.0
P16S	12/6/2012	835092.8	889998.3	393.39	390.9	370.9	350.9	40.0
P17D	9/6/2013	834718.8	890158.3	395.56	392.6	267.3	262.3	130.3
P17I	12/10/2013	834744.2	890148.9	394.86	392.5	333.6	328.6	63.9
P17S	11/27/2012	834736.7	890152.8	394.65	392.5	373.5	355.5	37.0
P19D	12/10/2013	833915.6	890552.2	392.08	390.3	270.3	265.3	125.0
P19I	12/10/2013	833911.3	890550.6	392.75	390.2	330.7	325.7	64.5
P19S	11/27/2012	833919.0	890546.4	393.31	390.6	368.6	348.6	42.0
P21D	12/9/2013	832902.9	891031.2	393.39	391.0	271.8	266.8	124.2
P21I	12/9/2013	832904.2	891027.0	393.53	391.2	333.4	328.4	62.8
P21S	11/28/2012	832898.0	891024.7	393.87	391.5	371.5	351.5	40.0
P22D	12/7/2013	832278.2	891018.7	393.76	391.6	286.6	281.6	110.0
P22S	11/29/2012	832277.0	891007.6	394.30	392.2	373.2	353.2	39.0
P29D	12/11/2013	837804.9	885389.1	398.27	396.2	300.9	295.9	100.3
P29S	1/17/2013	837797.9	885383.8	399.11	397.0	367.0	347.0	50.0
P30S	1/16/2013	836606.9	889007.8	407.75	408.0	368.0	348.0	60.0
P31S	12/10/2012	835629.4	887488.1	408.68	406.1	374.1	354.1	52.0

Notes:
1) Horizontal Datum: State Plane Coordinates NAD83 (2000) Missouri East Zone feet.
2) FT MSL- Feet above mean sea level.
3) FT BGS - Feet below ground surface.
4) Vertical Datum: NAVD88 feet.

Prepared by: BTT
Checked by: EMS
Reviewed by: MNH

Table 3
Summary of Detection and Assessment Groundwater Network Sampling Dates
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

Groundwater Monitoring Wells	Date of Sample Collection			
	January 2020 Verification Sampling	April 2020 Assessment/ Detection Monitoring	October 2020 Assessment/ Detection Monitoring	Total Number of Samples
CCR Rule Compliance Monitoring Well Network				
MW-B1	-	4/8/2020	10/27/2020	2
MW-B2	-	4/8/2020	10/27/2020	2
MW-1	-	4/6/2020	10/26/2020	2
MW-2	-	4/6/2020	10/26/2020	2
MW-3	-	4/7/2020	10/27/2020	2
MW-4	-	4/8/2020	10/28/2020	2
MW-5	-	4/8/2020	10/28/2020	2
MW-6	-	4/9/2020	10/26/2020	2
MW-7(R)	1/9/2020	4/9/2020	10/26/2020	3
Assessment or Detection Monitoring	Detection	Assessment/ Detection	Assessment/ Detection	NA

Notes:
1.) Detection Monitoring results provided in Tables 5-7.
2.) Verification Sampling results provided in Table 5.
3.) Assessment Monitoring results provided in Tables 8-10.
4.) "-" No sample collected.
5.) NA - Not Applicable.

Prepared by: BTT
Checked by: EMS
Reviewed by: MNH

Table 4
Summary of Corrective Action Groundwater Network Sampling Dates
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

Groundwater Monitoring Wells	Date of Sample Collection							
	April 2020 Sampling Event	May 2020 Sampling Event	June 2020 Sampling Event	July 2020 Sampling Event	August 2020 Sampling Event	October 2020 Sampling Event	October-November 2020 Sampling Event	Total Number of Samples
Corrective Action Monitoring Well Network								
P05S	4/9/2020	5/22/2020	-	-	-	-	10/28/2020	3
P10S	4/8/2020	5/21/2020	-	7/22/2020	8/25/2020	10/1/2020	10/26/2020	6
P16S	4/9/2020	5/20/2020	6/23/2020	7/22/2020	8/25/2020	10/1/2020	10/26/2020	7
P17D	4/6/2020	5/20/2020	-	-	-	-	10/26/2020	3
P17I	4/6/2020	5/21/2020	-	-	-	-	10/26/2020	3
P17S	4/6/2020	5/21/2020	-	-	-	-	10/26/2020	3
P19D	4/7/2020	5/20/2020	-	-	-	-	10/27/2020	3
P19I	4/7/2020	5/20/2020	-	-	-	-	10/27/2020	3
P19S	4/7/2020	5/20/2020	-	-	-	-	10/27/2020	3
P21D	4/7/2020	5/19/2020	-	-	-	-	10/27/2020	3
P21I	4/7/2020	5/19/2020	-	-	-	-	10/27/2020	3
P21S	4/7/2020	5/19/2020	-	-	-	-	10/27/2020	3
P22D	4/8/2020	5/19/2020	-	-	-	-	10/28/2020	3
P22S	4/8/2020	5/19/2020	-	-	-	-	10/28/2020	3
P29D	4/7/2020	5/21/2020	-	-	-	-	10/27/2020	3
P29S	4/8/2020	5/21/2020	-	-	-	-	10/27/2020	3
P30S	4/7/2020	5/21/2020	-	7/22/2020	8/26/2020	10/1/2020	10/28/2020	6
P31S	4/7/2020	5/22/2020	-	7/22/2020	-	-	11/23/2020	4
Event Type	Corrective Action	Corrective Action	Corrective Action	Corrective Action	Corrective Action	Corrective Action	Corrective Action	NA

Notes:

1.) Corrective Action sampling results provided in Tables 11-13.

2.) Additional Corrective Action sampling results from June 23, 2020 through October 1, 2020 provided in Table 14.

3.) "-" No sample collected.

4.) NA - Not Applicable.

Prepared by: BTT
Checked by: EMS
Reviewed by: MNH

Table 5
November 2019 Detection Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	PREDICTION LIMITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)	P19I
November 2019 Detection Monitoring Event												
DATE	NA	NA	11/11/2019	11/11/2019	11/11/2019	11/8/2019	11/11/2019	11/11/2019	11/11/2019	11/11/2019	11/11/2019	11/8/2019
pH	SU	6.244-7.486	7.21	7.41	8.86	10.74	9.81	7.39	7.48	7.17	7.26	10.93
BORON, TOTAL	µg/L	140.0	104	39.1 J	3,170	3,760	13,000	3,580	109	1,490	2,610	5,710
CALCIUM, TOTAL	µg/L	161,000	133,000	106,000	27,200	9,000	5,420	78,200	139,000	92,600	71,400	7,960
CHLORIDE, TOTAL	mg/L	66.36	45.5	30.3	21.5	23.9	28.6	20.5	5.6	9.5	77.2	22.9
FLUORIDE, TOTAL	mg/L	0.2332	0.19 J	0.18 J	0.74	1.0	1.1	0.75	0.16 J	0.20	0.29	1.6
SULFATE, TOTAL	mg/L	46.9	41.7	12.0	125 J	267	117	59.6	4.7	17.8	26.7	365
TOTAL DISSOLVED SOLIDS	mg/L	757	611	389	529	777	649	415	424	354	483	1,040
January 2020 Verification Sampling Event												
DATE	NA	NA									1/9/2020	
pH	SU	6.244-7.486										
BORON, TOTAL	µg/L	140.0										
CALCIUM, TOTAL	µg/L	161,000										
CHLORIDE, TOTAL	mg/L	66.36										
FLUORIDE, TOTAL	mg/L	0.2332									0.095 J	
SULFATE, TOTAL	mg/L	46.9										
TOTAL DISSOLVED SOLIDS	mg/L	757										

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

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

Table 6
April 2020 Detection Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

			BACKGROUND		GROUNDWATER MONITORING WELLS						
ANALYTE	UNITS	PREDICTION LIMITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)
April 2020 Detection Monitoring Event											
DATE	NA	NA	4/8/2020	4/8/2020	4/6/2020	4/6/2020	4/7/2020	4/8/2020	4/8/2020	4/9/2020	4/9/2020
pH	SU	6.244-7.486	6.83	6.93	8.14	10.66	9.78	7.32	7.31	7.05	7.04
BORON, TOTAL	µg/L	140.0	103	38.8 J	2,260	4,000	13,000	3,850	118	266	2,540
CALCIUM, TOTAL	µg/L	161,000	134,000	102,000 J	64,400	10,500	5,850	71,900	138,000	117,000	66,500
CHLORIDE, TOTAL	mg/L	66.36	64.0	19.6	19.6	24.7	29.5	19.1	7.4	8.9	14.3
FLUORIDE, TOTAL	mg/L	0.2332	0.14 J	0.23	0.43	1.0	0.92	0.73	0.14 J	0.22	0.30
SULFATE, TOTAL	mg/L	46.9	38.3	19.3	259	228	153	55.2	9.6	22.6	22.9
TOTAL DISSOLVED SOLIDS	mg/L	757	631	404	673	728	691	412	420	480	378

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.
4. Prediction Limits calculated using Sanitas Software.
5. Values highlighted in yellow indicate a Statistically Significant Increase (SSI).
6. Only analytes/wells that were detected above the prediction limit and that had not already been verified were tested during Verification Sampling.
7. There were no new exceedences for the April 2020 event; therefore no Verification Sampling was necessary.

Prepared By: JSI
Checked By: KAB
Reviewed By: MNH

Table 7
October 2020 Detection Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS						
ANALYTE	UNITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)
October 2020 Detection Monitoring Event										
DATE	NA	10/27/2020	10/27/2020	10/26/2020	10/26/2020	10/27/2020	10/28/2020	10/28/2020	10/26/2020	10/26/2020
pH	SU	7.02	7.26	7.69	10.92	9.65	7.39	7.57	7.19	6.89
BORON, TOTAL	µg/L	109	41.1 J	1,620	5,570	13,900	3,780	80.7 J	797	2,250
CALCIUM, TOTAL	µg/L	153,000	106,000	151,000 J	9,540	6,100	69,100	132,000	86,900	64,900
CHLORIDE, TOTAL	mg/L	47.9	19.7	14.7	26.2	31.4	20.3	5.6	6.6	11.3
FLUORIDE, TOTAL	mg/L	0.28	0.30	0.23	0.96	1.1	0.91	0.18 J	0.33	0.44
SULFATE, TOTAL	mg/L	37.9	15.9	386	305	202	55.0	8.7	23.7	37.0
TOTAL DISSOLVED SOLIDS	mg/L	668	388	975	748	758	430	432	320	364

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units.
2. J - Result is an estimated value.
3. NA - Not applicable.

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

Table 8
November 2019 Assessment Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS							
ANALYTE	UNITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)	P19I
FIELD PARAMETERS											
DATE	NA	11/11/2019	11/11/2019	11/11/2019	11/8/2019	11/11/2019	11/11/2019	11/11/2019	11/11/2019	11/11/2019	11/8/2019
DISSOLVED OXYGEN	mg/L	0.38	0.75	0.16	0.15	0.40	0.12	0.24	0.66	0.19	0.16
pH	SU	7.21	7.41	8.86	10.74	9.81	7.39	7.48	7.17	7.26	10.93
REDOX POTENTIAL	mV	-138.8	-182.3	-73.4	-175.0	-133.2	-174.1	-36.0	192.5	169.7	-181.0
SPECIFIC CONDUCTIVITY	mS/cm	1.140	0.780	0.876	1.109	0.984	0.710	0.810	0.640	0.970	1.407
TURBIDITY	NTU	4.63	4.42	1.43	2.93	4.43	2.43	4.73	1.35	2.43	2.23
APPENDIX IV PARAMETERS											
ANTIMONY, TOTAL	µg/L	ND	ND	0.59 J	3.5	0.11 J	ND	ND	ND	ND	5.0
ARSENIC, TOTAL	µg/L	27.1	3.1	12.6	236	49.1	10.3	2.6	2.1	18.5	287
BARIUM, TOTAL	µg/L	423	391	18.8	8.6	13.0	294	397	179	171	15.6
CADMIUM, TOTAL	µg/L	ND	0.047 J	0.065 J	0.31 J	0.54	0.048 J	ND	ND	0.076 J	0.56
FLUORIDE, TOTAL	mg/L	0.19 J	0.18 J	0.74	1.0	1.1	0.75	0.16 J	0.20	0.29	1.6
LEAD, TOTAL	µg/L	ND	ND	ND	11.0	4.9	ND	ND	ND	ND	17.2
LITHIUM, TOTAL	µg/L	48.6	ND	ND	ND	ND	33.6	ND	ND	47.8	13.5
MOLYBDENUM, TOTAL	µg/L	ND	ND	133	164	1,050	96.4	ND	ND	143	317
RADIUM [226 + 228]	pCi/L	1.944	ND	ND	1.421	ND	ND	ND	1.785 J	ND	ND
SELENIUM, TOTAL	µg/L	ND	ND	0.60 J	1.2 J	0.54 J	0.13 J	ND	0.17 J	0.10 J	2.3

NOTES
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, and 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. NA - Not Applicable.
4. ND - Constituent was analyzed for but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
5. 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.
6. Lead results for MW-2 and P19I use United States Environmental Protection Agency (USEPA) method 200.7 instead of USEPA method 200.8 due to laboratory error.
7. Statistical Analysis for the November 2019 Assessment Monitoring data is provided in Appendix B.

Prepared By: JSI
Checked By: EMS
Reviewed By: CMR

Table 9
April 2020 Assessment Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS						
ANALYTE	UNITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)
FIELD PARAMETERS										
DATE	NA	4/8/2020	4/8/2020	4/6/2020	4/6/2020	4/7/2020	4/8/2020	4/8/2020	4/9/2020	4/9/2020
DISSOLVED OXYGEN	mg/L	0.40	0.11	1.13	0.55	0.67	0.45	0.41	0.55	0.50
pH	SU	6.83	6.93	8.14	10.66	9.78	7.32	7.31	7.05	7.04
REDOX POTENTIAL	mV	23.8	53.6	110.3	-3.7	-17.5	-126.7	-146.4	-100.8	120.5
SPECIFIC CONDUCTIVITY	mS/cm	1.159	0.729	1.093	1.101	1.092	0.708	0.802	0.815	0.612
TURBIDITY	NTU	4.13	4.59	2.14	1.51	3.30	3.15	4.37	6.22	2.58
APPENDIX IV PARAMETERS										
ANTIMONY, TOTAL	µg/L	ND	ND	0.39 J	2.5	0.098 J	ND	ND	ND	ND
ARSENIC, TOTAL	µg/L	22.4	4.8	6.1	223	50.6	10.7	3.0	24.2	42.3
BARIUM, TOTAL	µg/L	428	404	42.2	9.8	12.5	288	409	245	141
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	ND	0.24 J	0.41 J	0.060 J	ND	ND	ND
CHROMIUM, TOTAL	µg/L	ND	ND	0.22 J	0.45 J	0.69 J	ND	0.31 J	ND	0.24 J
COBALT, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORIDE, TOTAL	mg/L	0.14 J	0.23	0.43	1.0	0.92	0.73	0.14 J	0.22	0.30
LEAD, TOTAL	µg/L	ND	ND	ND	6.9 J	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	58.1	10.7	ND	5.1 J	4.7 J	41.7	9.2 J	6.4 J	27.9
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	ND	ND	57.3	295	993	102	ND	3.0 J	78.2
RADIUM [226 + 228]	pCi/L	1.867	ND	ND	ND	ND	ND	ND	2.436	ND
SELENIUM, TOTAL	µg/L	ND	ND	0.21 J	1.0	0.49 J	ND	ND	0.36 J	ND
THALLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, and 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. NA - Not Applicable.
4. ND - Constituent was analyzed for but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
5. 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.
7. Statistical Analysis for the April 2020 Assessment Monitoring data is provided in Appendix C.

Prepared By: JSI
Checked By: EMS
Reviewed By: MNH

Table 10
October 2020 Assessment Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

		BACKGROUND		GROUNDWATER MONITORING WELLS						
ANALYTE	UNITS	MW-B1	MW-B2	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7(R)
FIELD PARAMETERS										
DATE	NA	10/27/2020	10/27/2020	10/26/2020	10/26/2020	10/27/2020	10/28/2020	10/28/2020	10/26/2020	10/26/2020
DISSOLVED OXYGEN	mg/L	1.53	0.29	0.21	6.96	0.11	0.30	0.24	1.68	0.97
pH	SU	7.02	7.26	7.69	10.92	9.65	7.39	7.57	7.19	6.89
REDOX POTENTIAL	mV	-105.8	-108.9	139.4	-156.2	-162.2	-151.9	-128.3	76.1	113.7
SPECIFIC CONDUCTIVITY	mS/cm	1.205	0.709	1.432	1.111	1.172	0.724	0.749	0.571	0.651
TURBIDITY	NTU	2.01	1.32	1.08	3.13	1.99	0.98	2.24	3.78	1.48
APPENDIX IV PARAMETERS										
ANTIMONY, TOTAL	µg/L	ND	ND	0.11 J	2.5	ND	ND	ND	ND	ND
ARSENIC, TOTAL	µg/L	24.0	5.3	3.0	212	44.2	9.8	1.9	1.4	97.7
BARIUM, TOTAL	µg/L	498	386	116	10.2	15.8	272	364	123	162
CADMIUM, TOTAL	µg/L	ND	ND	0.24 J	0.21 J	0.085 J	ND	ND	ND	ND
CHROMIUM, TOTAL	µg/L	ND	ND	ND	0.39 J	0.32 J	ND	ND	ND	ND
COBALT, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORIDE, TOTAL	mg/L	0.28	0.30	0.23	0.96	1.1	0.91	0.18 J	0.33	0.44
LEAD, TOTAL	µg/L	ND	ND	ND	10.2	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	52.8	4.8 J	ND	ND	ND	37.8	ND	ND	24.0
MOLYBDENUM, TOTAL	µg/L	ND	ND	15.8 J	222	774	112	ND	ND	95.2
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	ND	ND	ND	1.4	0.45 J	ND	ND	0.30 J	ND

NOTES
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, and 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. NA - Not Applicable.
4. ND - Constituent was analyzed for but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
5. 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.

Prepared By: JSI
Checked By: EMS
Reviewed By: MNH

Table 11
April 2020 Corrective Action Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

ANALYTE	UNITS	P05S	P10S	P16S	P17D	P17I	P17S	P19D	P19I	P19S	P21D	P21I	P21S	P22D	P22S	P29D	P29S	P30S	P31S
FIELD PARAMETERS																			
DATE	NA	4/9/2020	4/8/2020	4/9/2020	4/6/2020	4/6/2020	4/6/2020	4/7/2020	4/7/2020	4/7/2020	4/7/2020	4/7/2020	4/7/2020	4/8/2020	4/8/2020	4/7/2020	4/8/2020	4/7/2020	4/7/2020
DISSOLVED OXYGEN	mg/L	0.09	0.27	0.13	1.20	0.35	0.10	0.87	0.03	0.82	1.01	0.46	0.71	0.11	0.06	0.13	0.20	0.18	0.14
REDOX POTENTIAL	mV	-47.3	156.6	70.3	129.7	31.6	-123.1	-166.5	-85.2	-88.0	-114.2	-95.1	-98.9	-112.5	27.2	164.3	62.2	304.3	88.5
SPECIFIC CONDUCTIVITY	mS/cm	0.461	0.810	1.337	0.418	1.109	1.315	0.999	1.355	1.522	0.559	0.577	1.840	0.852	1.791	1.051	0.989	1.033	0.386
TURBIDITY	NTU	9.61	1.68	0.81	1.23	2.28	2.94	2.74	1.22	1.45	0.99	1.43	1.62	1.67	4.96	0.43	19.6	2.74	0.80
APPENDIX III PARAMETERS																			
BORON, TOTAL	µg/L	4,490	2,240	2,950	6,960	2,500	2,300	10,600	4,960	2,080	3,490	2,420	386	10,300	464	85.8 J	87.3 J	786	294
CALCIUM, TOTAL	µg/L	62,400	63,400	177,000	46,100	7,890	93,600	29,400	7,020	210,000	314,000	13,600	277,000	25,900	267,000	96,400	141,000	122,000	62,300
CHLORIDE, TOTAL	mg/L	24.0	19.7	51.8	28.5	22.9	37.0	27.0	21.4	29.8	1,470	29.9	36.3	25.8	48.1	117	17.9	40.3	2.8
pH	SU	7.12	6.93	6.95	7.23	10.42	7.34	7.98	10.92	6.65	7.26	8.42	6.81	7.41	6.73	7.07	6.77	6.77	7.19
SULFATE, TOTAL	mg/L	15.6	134	274	292	251 J	218	213	298	33.0	196	87.9	39.7	80.1	250	21.0	23.0	149	13.3
TOTAL DISSOLVED SOLIDS	mg/L	357	537	952	609	732	830	606	1,010	851	3,530	352	1,030	539	1,130	547	562	617	255
APPENDIX IV PARAMETERS																			
ANTIMONY, TOTAL	µg/L	ND	ND	ND	ND	0.59 J	ND	ND	4.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC, TOTAL	µg/L	163	6.2	2.4	1.3	71.3	38.5	0.71 J	271	29.0	0.65 J	5.9	82.5	10.8	1.9	1.0	25.8	0.90 J	15.7
BARIUM, TOTAL	µg/L	158	116	99.9	104	14.7	81.3	91.4	11.0	492	441	23.6	581	73.1	230	148	377	85.4	130
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	0.085 J	0.092 J	0.27 J	0.71	ND	0.38 J	0.50	ND	0.095 J	0.11 J	ND	0.18 J	0.079 J	ND	ND	0.072 J	ND
CHROMIUM, TOTAL	µg/L	0.31 J	ND	ND	ND	1.1	0.22 J	0.48 J	0.33 J	0.27 J	ND	0.48 J	0.23 J	1.0	ND	ND	0.86 J	ND	ND
COBALT, TOTAL	µg/L	ND	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	3.0 J	ND	2.6 J	ND	3.5 J	ND	ND
FLUORIDE, TOTAL	mg/L	0.32	0.51	0.14 J	0.60	2.0	0.59 J	2.0	1.5	0.33	0.78	0.93	0.31	2.1	0.37	0.24	0.22	0.33	0.36
LEAD, TOTAL	µg/L	ND	ND	ND	ND	25.0	ND	ND	13.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	18.9	17.0	41.7	41.1	5.7 J	27.1	16.0	14.6	52.2	249	15.3	20.4	26.4	66.1	46.7	29.2	34.1	10.4
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	8.2 J	108	35.1	683	134	85.8	975	236	6.1 J	196	156	4.1 J	357	9.0 J	1.9 J	ND	ND	7.8 J
RADIUM [226 + 228]	pCi/L	1.277	ND	ND	ND	ND	ND	ND	ND	1.899	3.580	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	0.21 J	ND	0.42 J	0.33 J	2.2 J	0.37 J	0.38 J	2.2	ND	ND	0.64 J	0.36 J	0.74 J	ND	ND	ND	0.24 J	ND
THALLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADDITIONAL PARAMETERS																			
ALKALINITY	mg/L	270	228	412	140	230	424	228	299	724	226	136	884	277	680	318	474	288	213
IRON, FERRIC, TOTAL	mg/L	9.3	0.62	0.066	2.8	ND	2.0	0.92	ND	18.2	8.5	ND	31.4	0.10	2.5	3.2	8.0	0.060	4.0
IRON, FERROUS, TOTAL	mg/L	0.17 J	ND	ND	0.18 J	0.56 J	0.15 J	0.92 J	0.17 J	12.7 J	2.8 J	0.34 J	12.2 J	1.1 J	ND	0.99 J	ND	ND	0.18 J
IRON, TOTAL	µg/L	9,440	645	66.2	2,980	448	2,120	1,840	80.9	30,900	11,300	340	43,700	1,230	2,500	4,180	7,960	60.0	4,160
MAGNESIUM, TOTAL	µg/L	23,000	11,200	31,300	10,200	213	21,600	4,230	ND	39,000	87,500	1,400	62,900	3,490	60,700	27,800	35,600	21,900	11,000
MANGANESE, TOTAL	µg/L	287	1,190	563	425	7.4	1,340	216	1.6 J	1,630	1,640	37.9	4,360	85.1	937	140	585	249	866
POTASSIUM, TOTAL	µg/L	5,830	4,470	7,250	6,950	1,940	3,280	3,560	12,200	8,490	16,200	3,990	5,630	4,930	8,130	5,010	5,620	6,140	3,970
SODIUM, TOTAL	µg/L	28,200	91,600	96,200	131,000	229,000 J	175,000	181,000	273,000	58,500	627,000	108,000	30,700	168,000	58,800	71,400	16,400	54,600	11,500
SULFIDE, TOTAL	mg/L	ND	ND	ND	0.043 J	1.5 J	ND	ND	4.0	ND	ND	0.12	ND	0.054	ND	ND	0.040 J	ND	ND

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 for 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: JSI
Check By: EMS
Reviewed By: MNH

Table 12
May 2020 Corrective Action Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

ANALYTE	UNITS	P05S	P10S	P16S	P17D	P17I	P17S	P19D	P19I	P19S	P21D	P21I	P21S	P22D	P22S	P29D	P29S	P30S	P31S
FIELD PARAMETERS																			
DATE	NA	5/22/2020	5/21/2020	5/20/2020	5/20/2020	5/21/2020	5/21/2020	5/20/2020	5/20/2020	5/20/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/19/2020	5/21/2020	5/21/2020	5/21/2020	5/22/2020
DISSOLVED OXYGEN	mg/L	0.15	1.37	0.10	1.24	0.04	0.14	0.06	0.04	0.19	0.12	0.09	0.51	0.12	0.13	0.12	0.15	0.19	0.20
REDOX POTENTIAL	mV	-153.6	-42.3	229.7	144.8	138.5	165.3	82.4	104.4	144.3	186.6	175.8	119.6	-148.0	199.5	93.7	15.3	-1.8	-132.6
SPECIFIC CONDUCTIVITY	mS/cm	0.686	0.740	1.282	0.803	1.001	1.338	0.919	1.329	1.723	5.233	0.547	1.780	0.823	1.762	0.907	0.848	0.913	0.454
TURBIDITY	NTU	9.11	4.90	1.12	2.35	1.79	8.00	0.74	1.14	2.48	0.63	0.94	2.22	1.34	1.88	0.86	18.10	4.07	4.96
APPENDIX III PARAMETERS																			
BORON, TOTAL	µg/L	4,200	1,960	2,770	7,810	2,620	2,040	10,900	5,370	1,760	4,180	2,600	393	10,200	458	99.4 J	93.6 J	846	322
CALCIUM, TOTAL	µg/L	67,400	65,200	148,000	46,100	8,740	117,000	26,300	6,900	230,000	334,000	14,600	292,000 J	29,600	297,000	87,400	141,000	108,000	62,500
CHLORIDE, TOTAL	mg/L	22.8	19.4	48.5	27.9	24.3	42.7	25.9	22.2	30.4	ND	30.4	38.7	29.4	55.2	124	18.4	51.5	3.2
pH	SU	7.23	7.15	6.77	7.41	10.29	7.19	7.92	10.81	6.51	7.14	7.91	6.54	7.55	6.67	7.66	6.94	7.00	7.38
SULFATE, TOTAL	mg/L	26.9	131	323	301	264	195	217	320	19.3	192	91.6	45.5	89.5	282	23.1	23.5	143	15.5
TOTAL DISSOLVED SOLIDS	mg/L	372	451	903	595	770	849	690	958	963	3,840	375	1,060	588	1,290	550	557	616	260
APPENDIX IV PARAMETERS																			
ANTIMONY, TOTAL	µg/L	ND	0.14 J	ND	ND	0.60 J	ND	ND	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC, TOTAL	µg/L	136	5.2	2.7	1.2	63.9	34.6	0.57 J	243	21.4	0.58 J	5.2	67.6	8.2	1.5	0.96 J	31.0	2.5	14.3
BARIUM, TOTAL	µg/L	173	112	78.4	108	15.1	104	85.7	11.2	541	484	26.6	605	67.7	233	140	359	82.9	134
CADMIUM, TOTAL	µg/L	ND	0.28 J	0.098 J	0.24 J	0.65	ND	0.31 J	0.48 J	ND	ND	0.098 J	ND	0.12 J	0.066 J	ND	ND	0.066 J	ND
CHROMIUM, TOTAL	µg/L	0.44 J	ND	ND	ND	0.83 J	ND	0.31 J	0.24 J	ND	ND	0.31 J	ND	0.89 J	ND	ND	0.69 J	ND	ND
COBALT, TOTAL	µg/L	ND	ND	2.4 J	ND	ND	2.7 J	ND	ND	ND	ND	ND	2.2 J	ND	3.4 J	ND	3.4 J	ND	ND
FLUORIDE, TOTAL	mg/L	0.38	0.50	0.59	0.61	2.3	0.82	2.2	2.0	0.31	0.79	1.0	0.37	2.4	0.40	0.26	0.25	0.40	0.44
LEAD, TOTAL	µg/L	ND	ND	ND	ND	21.6	ND	ND	8.5 J	ND	ND	ND	4.7 J	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	20.0	17.7	33.5	42.3	ND	32.8	21.2	12.8	54.4	239	17.2	20.7	26.5	71.1	49.5	28.4	34.3	8.6 J
MOLYBDENUM, TOTAL	µg/L	13.4 J	86.9	55.3	666	119	52.1	846	218	2.4 J	203	147	1.9 J	369	8.8 J	ND	ND	ND	7.6 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.097	ND	1.980	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	ND	ND	0.22 J	0.26 J	1.9	0.34 J	0.34 J	2.1	ND	ND	0.57 J	0.36 J	0.48 J	ND	ND	ND	0.37 J	ND
ADDITIONAL PARAMETERS																			
ALKALINITY	mg/L	272	253	342	120	223	512	209	290	822	227	137	926	304	743	332	482	267	212
IRON, TOTAL	µg/L	10,100	398	1,760	3,050	418	2,980	1,660	92.4	35,700	11,700	330	47,800	1,440	3,480	4,030	10,300	1,270	3,470
MAGNESIUM, TOTAL	µg/L	22,000	11,000	25,100	10,400	293	28,000	3,800	ND	42,000	93,400	1,560	65,200	4,400	63,600	26,000	33,300	18,900	11,100
MANGANESE, TOTAL	µg/L	335	1,190	432	455	9.7	2,010	206	3.4 J	1,920	1,900	44.6	4,970	114	958	140	578	268	1,180
POTASSIUM, TOTAL	µg/L	5,870	4,550	6,290	7,060	1,970	3,390	3,300	12,200	8,460	17,100	4,250	5,900	5,220	8,670	4,710	5,570	5,760	3,960
SODIUM, TOTAL	µg/L	33,600	81,200	95,100	131,000	218,000	150,000	171,000	264,000	48,500	42,900	106,000	31,700	163,000	59,200	70,200	16,600	55,400	12,100

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 for 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: JSI
Check By: EMS
Reviewed By: MNH

Table 13
October-November 2020 Corrective Action Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

ANALYTE	UNITS	P05S	P10S	P16S	P17D	P17I	P17S	P19D	P19I	P19S	P21D	P21I	P21S	P22D	P22S	P29D	P29S	P30S	P31S
FIELD PARAMETERS																			
DATE	NA	10/28/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/27/2020	10/27/2020	10/27/2020	10/27/2020	10/27/2020	10/27/2020	10/28/2020	10/28/2020	10/27/2020	10/27/2020	10/28/2020	11/23/2020
DISSOLVED OXYGEN	mg/L	0.39	2.13	1.06	0.13	0.08	0.92	1.08	0.15	1.27	0.52	0.55	0.48	0.22	0.13	0.21	0.75	0.16	1.56
REDOX POTENTIAL	mV	-138.0	80.0	101.5	-138.5	-38.4	-26.1	-175.5	-222.0	-89.7	-177.2	-169.5	-138.0	-193.7	-33.9	-104.1	-53.4	-36.1	-8.5
SPECIFIC CONDUCTIVITY	mS/cm	0.690	0.823	2.915	0.964	1.096	1.437	1.040	1.409	1.631	2.642	0.600	1.364	0.879	1.578	0.892	1.388	1.159	0.469
TURBIDITY	NTU	18.68	6.43	1.70	2.01	2.82	0.96	2.05	2.40	2.63	0.70	0.76	3.45	1.31	1.50	1.57	4.53	6.35	9.80
APPENDIX III PARAMETERS																			
BORON, TOTAL	µg/L	4,310	2,260	3,420	7,730	2,010	1,460	10,600	4,890	1,650	5,360	2,200	944	9,300	558	85.3 J	91.4 J	810	323
CALCIUM, TOTAL	µg/L	69,400	57,800	430,000	46,600	9,700	104,000	28,100	6,480	227,000	91,900	19,600	153,000	24,600	222,000	84,000	200,000	154,000	71,100
CHLORIDE, TOTAL	mg/L	27.0	19.4	153	29.1	25.1	45.5	27.1	24.0	32.6	610	32.7	33.3	30.8	50.0	83.4	24.9	37.9	4.7
pH	SU	7.16	7.24	6.82	10.19	10.49	8.58	7.74	10.93	6.78	7.45	8.19	6.89	7.83	6.89	7.28	6.73	7.08	7.16
SULFATE, TOTAL	mg/L	39.8	140	857	303	303	155	230	300	74.7	132	85.0	11.3	98.6	248	22.8	89.5	149	30.2
TOTAL DISSOLVED SOLIDS	mg/L	405	500	2,200	611	752	911	655	1,060	959	1,440	363	711	590	1,060	487	881	697	370
APPENDIX IV PARAMETERS																			
ANTIMONY, TOTAL	µg/L	ND	0.11 J	ND	ND	0.46 J	0.23 J	ND	4.9	0.15 J	ND	ND	ND	0.11 J	ND	0.34 J	0.11 J	ND	ND
ARSENIC, TOTAL	µg/L	160	10.5	1.2	1.1	56.5	27.6	0.62 J	257	21.1	0.55 J	5.0	121	9.0	1.1	0.97 J	15.3	3.1	16.4
BARIUM, TOTAL	µg/L	185	133	81.7	99.8	15.2	85.7	84.7	11.8	577	109	37.4	332	75.6	180	138	521	106	164
CADMIUM, TOTAL	µg/L	ND	0.070 J	0.22 J	ND	0.52	0.077 J	0.059 J	0.43 J	ND	ND	ND	ND	0.092 J	0.13 J	ND	0.080 J	0.061 J	ND
CHROMIUM, TOTAL	µg/L	0.39 J	0.32 J	ND	ND	0.78 J	0.27 J	0.37 J	0.31 J	ND	0.22 J	0.22 J	0.24 J	1.2	ND	ND	0.23 J	ND	0.34 J
COBALT, TOTAL	µg/L	ND	1.5 J	ND	ND	ND	5.9	ND	ND	3.3 J	ND	ND	ND	ND	2.5 J	ND	4.9 J	ND	ND
FLUORIDE, TOTAL	mg/L	0.52	0.58	0.36	0.73	2.2	0.69	2.2	1.6	0.41	1.4	1.1	0.48	2.4	0.46	0.34	0.28	0.44	0.35
LEAD, TOTAL	µg/L	ND	ND	ND	ND	15.5	ND	ND	16.3	ND	ND	ND	ND	5.2 J	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	16.1	12.2	65.1	39.5	ND	24.5 J	14.7	14.0	40.9	140	19.6	15.1	25.3	50.6	33.4	44.3	34.5	ND
MOLYBDENUM, TOTAL	µg/L	20.1	101	11.0 J	718	92.8	36.3	869	222	15.0 J	374	83.2	8.0 J	361	10.3 J	ND	ND	ND	6.7 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	2.279	ND	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	0.25 J	0.20 J	0.34 J	0.27 J	1.6	0.55 J	0.31 J	3.1	ND	ND	0.41 J	0.32 J	0.85 J	ND	ND	ND	1.6	ND
ADDITIONAL PARAMETERS																			
ALKALINITY	mg/L	282	258	685	133	198	565	220	308	820	250	154	661	283	607	328	285	421	211
IRON, TOTAL	µg/L	10,300	1,910	85.8	2,740	293	824	1,640	77.4	11,800	2,350	270	28,900	1,270	796	3,810	9,390	1,320	1,830
MAGNESIUM, TOTAL	µg/L	20,800	8,720	84,800	10,300	421	23,600	4,010	42.1 J	41,000	29,000	2,430	46,600	3,240	51,900	24,000	48,000	26,700	13,200
MANGANESE, TOTAL	µg/L	298	869	134	418	7.7	2,210	218	3.2 J	1,550	628	58.6	1,640	82.5	620	143	520	213	2,060
POTASSIUM, TOTAL	µg/L	5,790	3,850	10,400	7,130	1,770	3,110	3,210	11,700	8,690	7,740	4,720	4,390	4,690	7,920	4,100	6,460	6,310	4,020
SODIUM, TOTAL	µg/L	38,200	97,800	118,000	122,000	182,000 J	165,000	172,000	258,000	47,200	330,000 J	97,700	34,000	170,000	57,900	53,700	19,300	58,800	14,400

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 for 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: JSI
Check By: EMS
Reviewed By: MNH

Table 14
Additional 2020 Corrective Action Monitoring Results
RCPA Surface Impoundment
Rush Island Energy Center, Jefferson County, MO

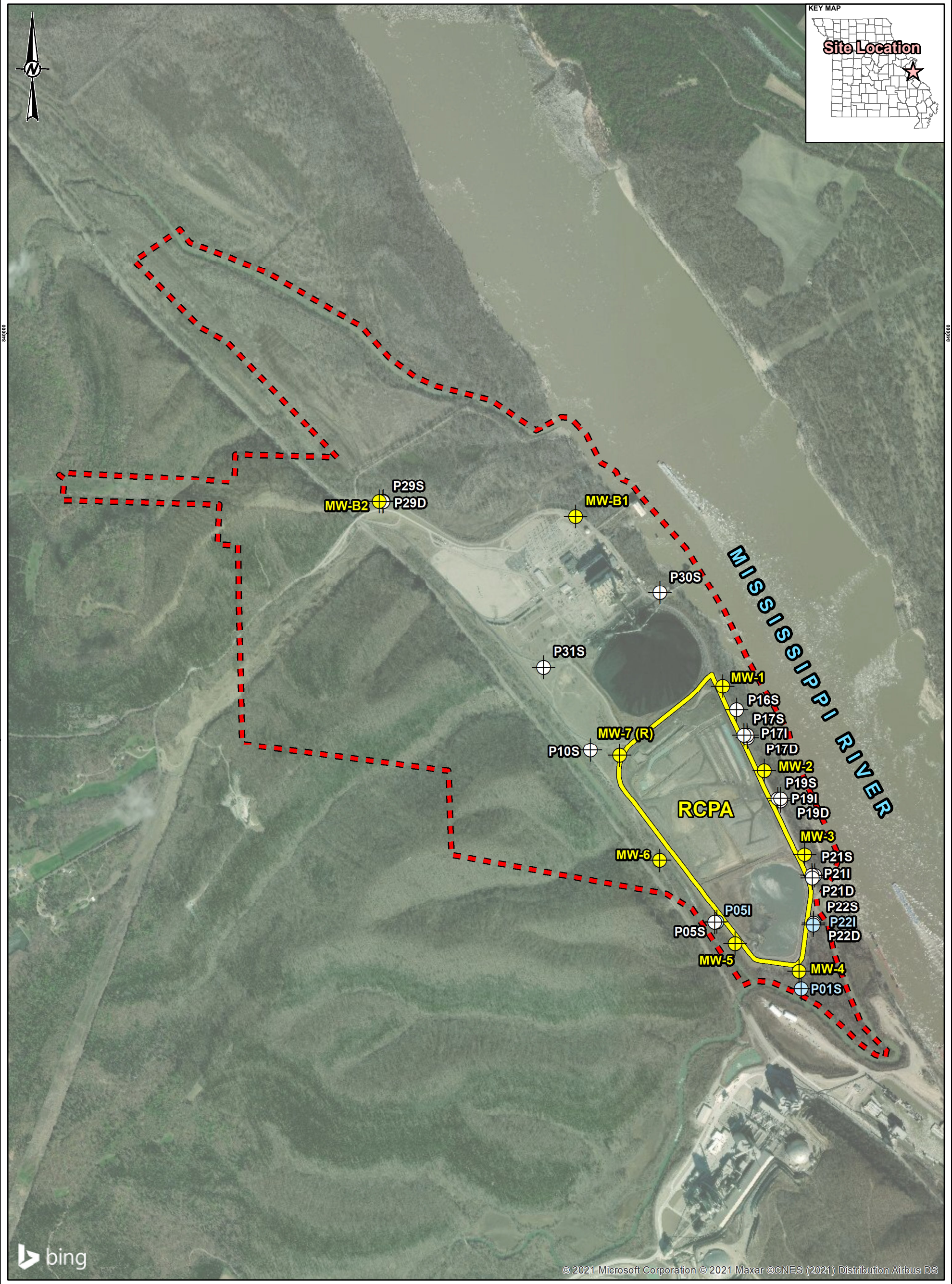
		GROUNDWATER MONITORING WELLS							
DATE	UNITS	P10S		P16S		P30S		P31S	
		Ar	Mo	Ar	Mo	Ar	Mo	Ar	Mo
6/23/2020	µg/L	-	-	1.6	31.6	-	-	-	-
7/22/2020	µg/L	5.7	111	1.7	31.0	1.4	2.1 J	19.4	7.7 J
8/25/2020	µg/L	7.4	117	1.7	18.9 J	-	-	-	-
8/26/2020	µg/L	-	-	-	-	2.0	ND	-	-
10/1/2020	µg/L	10.0	118	1.2	15.0 J	1.3	ND	-	-

NOTES:
1. Unit Abbreviations: µg/L - micrograms per liter, Ar - Arsenic, Mo - Molybdenum.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for but was not detected above the Method Detection Limit (MDL) or the adjusted Practical Quantitation Limit (PQL) based on data validation and is considered a non-detect. Values displayed as ND.
4. "-" No sample collected.
5. P31S was unable to be sampled in August and October due to low groundwater elevations.

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

Figures

PATH: C:\Users\ESchneider\Golder Associates\153140601,02 - Ameren CCR GW Monitoring Program 2020 - 15314106 - All Project Files (1)\5 Technical Work\0002-RIEC\2.4_Figures\PRODUCTION\Other Maps\Figure 1 - GWE Locations.mxd PRINTED ON: 2021-01-21 AT: 10:25:50 AM



LEGEND

- Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Monitoring Well Networks

- Corrective Action Monitoring Well
- RCPA Detection and Assessment Monitoring Well
- Monitoring Well Used for Water Levels Only

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

NOTE(S)

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

REFERENCE(S)

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
GROUNDWATER MONITORING PROGRAM

CONSULTANT
GOLDER

YYYY-MM-DD	2020-10-12
DESIGNED	JSI
PREPARED	BTT
REVIEWED	EMS
APPROVED	MNH

TITLE
RUSH ISLAND ENERGY CENTER GROUNDWATER MONITORING PROGRAMS AND WELL LOCATION MAP

PROJECT NO.	CONTROL	REV.	FIGURE
153140602	1240	0	2

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

APPENDIX A

Laboratory Analytical Data

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

February 13, 2020

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

RE: Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Dear Jeffrey Ingram:
Enclosed are the analytical results for sample(s) received by the laboratory on January 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

REV-1, 2/13/20: Per client request, sample ID updated from R-MW-7 to R-MW-7(R).

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

Sincerely,

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

Enclosures

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

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Lenexa, KS 66219
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CERTIFICATIONS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212018-8
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60326299001	**R-MW-7(R)**	Water	01/09/20 09:05	01/10/20 03:14

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60326299001	**R-MW-7(R)**	EPA 300.0	CNB	1	PASI-K

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Sample: R-MW-7(R) **Lab ID: 60326299001** Collected: 01/09/20 09:05 Received: 01/10/20 03:14 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.095J**	mg/L	0.20	0.075	1		01/15/20 21:51	16984-48-8	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

QC Batch: 632967 | Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 | Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60326299001

METHOD BLANK: 2577539 | Matrix: Water
Associated Lab Samples: 60326299001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	01/15/20 13:58	

METHOD BLANK: 2579249 | Matrix: Water
Associated Lab Samples: 60326299001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	01/16/20 14:00	

LABORATORY CONTROL SAMPLE: 2577540

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

LABORATORY CONTROL SAMPLE: 2579250

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2577541 2577542

Parameter	Units	60326375001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.47	125	125	203	202	162	161	80-120	1	15	M1

MATRIX SPIKE SAMPLE: 2577543

Parameter	Units	60326293001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.12J	2.5	3.1	120	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

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 RUSH ISLAND ENERGY CTR
Pace Project No.: 60326299

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60326299001	**R-MW-7(R)**	EPA 300.0	632967		

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Sample Condition Upon Receipt

WO#: 60326299

60326299

Client Name: Golder

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

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

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

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

Thermometer Used: R-299 **Type of Ice:** Wet Blue None

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

Date and initials of person examining contents: 1/10/20

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jami Church Date: 1/10/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

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

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES | GROUND WATER | DRINKING WATER
UST | RCRA | OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	200.7 Boron	200.7 Calcium	Chloride	Fluoride	Sulfate	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60326299
1	R-MW-7	WT	G			1/9/20	0905		1	/												/				207
2		WT	G																							
3		WT	G																							
4		WT	G																							
5		WT	G																							
6		WT	G																							
7		WT	G																							
8		WT	G																							
9		WT	G																							
10		WT	G																							
11		WT	G																							
12		WT	G																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	K Bartels / Golder	1/9/20	1315	[signature] / PACE	1/9/20	1315				
	[signature] / PACE	1/9/20	1700	[signature]	1/10/20	0834	7.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Katherine Bartels					
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 1/9/20				

MEMORANDUM

DATE February 13, 2020 **Project No.** 153140601

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – DATA PACKAGE 60326299REV1

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

- None.

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren - Rush Island - RIEC
Project Number: 153140601
Reviewer: T Goodwin
Validation Date: 2/13/2020

Laboratory: Pace Analytical - KS
SDG #: 60326299rev1
Analytical Method (type and no.): EPA 300.0 (Anions)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-MW-7(R)

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

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	x			1/9/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			
f) Field QC noted?	x			
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

None.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
None				

Signature: Tommy J. Hoodin Jr. Date: 2/13/2020

Pace Analytical Services, LLC
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Lenexa, KS 66219
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January 21, 2021

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

RE: Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between April 08, 2020 and April 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

REV-1, 1/21/21: Sample ID correction.

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

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
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60333703001	**R-MW-1**	Water	04/06/20 10:02	04/08/20 03:40
60333703002	**R-MW-2**	Water	04/06/20 14:54	04/08/20 03:40
60333703003	**R-MW-3**	Water	04/07/20 11:18	04/08/20 03:40
60333703004	**R-MS-1-MW-1**	Water	04/06/20 10:02	04/08/20 03:40
60333703005	**R-MSD-1-MW-1**	Water	04/06/20 10:02	04/08/20 03:40
60333703006	**R-MW-4**	Water	04/08/20 12:20	04/10/20 02:30
60333703007	**R-MW-5**	Water	04/08/20 14:35	04/10/20 02:30
60333703008	**R-MW-6**	Water	04/09/20 12:38	04/10/20 02:30
60333703009	**R-MW-7(R)**	Water	04/09/20 09:58	04/10/20 02:30
60333703010	**R-MW-B1**	Water	04/08/20 14:04	04/10/20 02:30
60333703011	**R-MW-B2**	Water	04/08/20 12:29	04/10/20 02:30
60333703012	**R-DUP-1**	Water	04/09/20 08:00	04/10/20 02:30
60333703013	**R-FB-1**	Water	04/09/20 13:15	04/10/20 02:30

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60333703001	**R-MW-1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60333703002	**R-MW-2**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60333703003	**R-MW-3**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60333703004	**R-MS-1-MW-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60333703005	**R-MSD-1-MW-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60333703006	**R-MW-4**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703007	**R-MW-5**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703008	**R-MW-6**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703009	**R-MW-7(R)**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703010	**R-MW-B1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703011	**R-MW-B2**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703012	**R-DUP-1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333703013	**R-FB-1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K

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

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-1 **Lab ID: 60333703001** Collected: 04/06/20 10:02 Received: 04/08/20 03:40 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.

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	**42.2**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:28	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:28	7440-41-7	
Boron	**2260**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:28	7440-42-8	
Calcium	**64400**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:28	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:28	7440-48-4	
Iron	**44.8J**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:28	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:28	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:28	7439-93-2	
Magnesium	**5380**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:28	7439-95-4	
Manganese	**19.3**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:28	7439-96-5	
Molybdenum	**57.3**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:28	7439-98-7	
Potassium	**8130**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:28	7440-09-7	
Sodium	**167000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:28	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.39J**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 10:55	7440-36-0	
Arsenic	**6.1**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 10:55	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 10:55	7440-43-9	
Chromium	**0.22J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 10:55	7440-47-3	
Selenium	**0.21J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 10:55	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 10:55	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:04	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**268**	mg/L	20.0	8.4	1		04/16/20 18:27		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**673**	mg/L	10.0	10.0	1		04/10/20 15:51		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.045J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/08/20 15:06		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-1 **Lab ID: 60333703001** Collected: 04/06/20 10:02 Received: 04/08/20 03:40 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.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:29	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.6**	mg/L	2.0	0.78	2		04/14/20 01:12	16887-00-6	
Fluoride	**0.43**	mg/L	0.20	0.075	1		04/14/20 00:24	16984-48-8	
Sulfate	**259**	mg/L	20.0	5.6	20		04/14/20 02:00	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-2 **Lab ID: 60333703002** Collected: 04/06/20 14:54 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**9.8**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:35	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:35	7440-41-7	
Boron	**4000**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:35	7440-42-8	
Calcium	**10500**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:35	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:35	7440-48-4	
Iron	**63.2**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:35	7439-89-6	
Lead	**6.9J**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:35	7439-92-1	
Lithium	**5.1J**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:35	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:35	7439-95-4	
Manganese	**1.7J**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:35	7439-96-5	
Molybdenum	**295**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:35	7439-98-7	
Potassium	**3280**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:35	7440-09-7	
Sodium	**219000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:35	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**2.5**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:00	7440-36-0	
Arsenic	**223**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:00	7440-38-2	
Cadmium	**0.24J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:00	7440-43-9	
Chromium	**0.45J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:00	7440-47-3	
Selenium	**1.0**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:00	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:00	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:11	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**242**	mg/L	20.0	8.4	1		04/16/20 18:36		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**728**	mg/L	10.0	10.0	1		04/10/20 15:51		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.11J**	mg/L	0.20	0.035	1		04/08/20 15:10		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-2 **Lab ID: 60333703002** Collected: 04/06/20 14:54 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**4.0**	mg/L	0.25	0.20	5		04/10/20 09:33	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**24.7**	mg/L	2.0	0.78	2		04/14/20 03:36	16887-00-6	
Fluoride	**1.0**	mg/L	0.20	0.075	1		04/14/20 03:20	16984-48-8	
Sulfate	**228**	mg/L	20.0	5.6	20		04/14/20 03:52	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-3 **Lab ID: 60333703003** Collected: 04/07/20 11:18 Received: 04/08/20 03:40 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.

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	**12.5**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:37	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:37	7440-41-7	
Boron	**13000**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:37	7440-42-8	
Calcium	**5850**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:37	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:37	7440-48-4	
Iron	**224**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:37	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:37	7439-92-1	
Lithium	**4.7J**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:37	7439-93-2	
Magnesium	**78.9**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:37	7439-95-4	
Manganese	**5.6**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:37	7439-96-5	
Molybdenum	**993**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:37	7439-98-7	
Potassium	**1870**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:37	7440-09-7	
Sodium	**243000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:37	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.098J**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:01	7440-36-0	
Arsenic	**50.6**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:01	7440-38-2	
Cadmium	**0.41J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:01	7440-43-9	
Chromium	**0.69J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:01	7440-47-3	
Selenium	**0.49J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:01	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:13	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**342**	mg/L	20.0	8.4	1		04/16/20 20:14		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**691**	mg/L	10.0	10.0	1		04/10/20 15:53		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.060**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.16J**	mg/L	0.20	0.035	1		04/08/20 15:14		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-3 **Lab ID: 60333703003** Collected: 04/07/20 11:18 Received: 04/08/20 03:40 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.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**1.2**	mg/L	0.10	0.078	2		04/10/20 09:43	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**29.5**	mg/L	10.0	3.9	10		04/14/20 04:25	16887-00-6	B
Fluoride	**0.92**	mg/L	0.20	0.075	1		04/14/20 04:08	16984-48-8	
Sulfate	**153**	mg/L	10.0	2.8	10		04/14/20 04:25	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-4 **Lab ID: 60333703006** Collected: 04/08/20 12:20 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**288**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:55	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:55	7440-41-7	
Boron	**3850**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:55	7440-42-8	
Calcium	**71900**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:55	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:55	7440-48-4	
Iron	**5380**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:55	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:55	7439-92-1	
Lithium	**41.7**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:55	7439-93-2	
Magnesium	**15000**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:55	7439-95-4	
Manganese	**290**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:55	7439-96-5	
Molybdenum	**102**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:55	7439-98-7	
Potassium	**4900**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:55	7440-09-7	
Sodium	**57200**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:55	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:03	7440-36-0	
Arsenic	**10.7**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:03	7440-38-2	
Cadmium	**0.060J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:03	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:03	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:03	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:42	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**266**	mg/L	20.0	8.4	1		04/17/20 19:23		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**412**	mg/L	5.0	5.0	1		04/15/20 14:42		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**5.4**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:12		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-4 **Lab ID: 60333703006** Collected: 04/08/20 12:20 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:20	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.1**	mg/L	5.0	1.9	5		04/16/20 20:17	16887-00-6	
Fluoride	**0.73**	mg/L	0.20	0.075	1		04/16/20 20:01	16984-48-8	
Sulfate	**55.2**	mg/L	5.0	1.4	5		04/16/20 20:17	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-5 **Lab ID: 60333703007** Collected: 04/08/20 14:35 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**409**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:57	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:57	7440-41-7	
Boron	**118**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:57	7440-42-8	
Calcium	**138000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:57	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:57	7440-48-4	
Iron	**12100**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:57	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:57	7439-92-1	
Lithium	**9.2J**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:57	7439-93-2	
Magnesium	**18600**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:57	7439-95-4	
Manganese	**480**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:57	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:57	7439-98-7	
Potassium	**2310**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:57	7440-09-7	
Sodium	**5340**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:57	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:05	7440-36-0	
Arsenic	**3.0**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:05	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:05	7440-43-9	
Chromium	**0.31J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:05	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:05	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:44	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**404**	mg/L	20.0	8.4	1		04/17/20 19:30		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**420**	mg/L	10.0	10.0	1		04/15/20 14:42		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**12.1**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:14		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-5 **Lab ID: 60333703007** Collected: 04/08/20 14:35 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:20	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**7.4**	mg/L	1.0	0.39	1		04/16/20 20:33	16887-00-6	
Fluoride	**0.14J**	mg/L	0.20	0.075	1		04/16/20 20:33	16984-48-8	
Sulfate	**9.6**	mg/L	1.0	0.28	1		04/16/20 20:33	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-6 **Lab ID: 60333703008** Collected: 04/09/20 12:38 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**245**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:59	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:59	7440-41-7	
Boron	**266**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:59	7440-42-8	
Calcium	**117000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:59	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:59	7440-48-4	
Iron	**7340**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:59	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:59	7439-92-1	
Lithium	**6.4J**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:59	7439-93-2	
Magnesium	**22700**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:59	7439-95-4	
Manganese	**1050**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:59	7439-96-5	
Molybdenum	**3.0J**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:59	7439-98-7	
Potassium	**3410**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:59	7440-09-7	
Sodium	**13100**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:59	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:06	7440-36-0	
Arsenic	**24.2**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:06	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:06	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:06	7440-47-3	
Selenium	**0.36J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:06	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:06	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:47	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**385**	mg/L	20.0	8.4	1		04/20/20 11:22		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**480**	mg/L	10.0	10.0	1		04/15/20 14:43		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**7.3**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:20		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-6 **Lab ID: 60333703008** Collected: 04/09/20 12:38 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:23	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**8.9**	mg/L	1.0	0.39	1		04/16/20 20:49	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.075	1		04/16/20 20:49	16984-48-8	
Sulfate	**22.6**	mg/L	2.0	0.56	2		04/16/20 21:05	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-7(R) **Lab ID: 60333703009** Collected: 04/09/20 09:58 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**141**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 17:05	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 17:05	7440-41-7	
Boron	**2540**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 17:05	7440-42-8	
Calcium	**66500**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 17:05	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 17:05	7440-48-4	
Iron	**2720**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 17:05	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:05	7439-92-1	
Lithium	**27.9**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:05	7439-93-2	
Magnesium	**21500**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 17:05	7439-95-4	
Manganese	**520**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 17:05	7439-96-5	
Molybdenum	**78.2**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 17:05	7439-98-7	
Potassium	**10900**	ug/L	500	189	1	04/21/20 14:45	04/22/20 17:05	7440-09-7	
Sodium	**35000**	ug/L	500	107	1	04/21/20 14:45	04/22/20 17:05	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:15	7440-36-0	
Arsenic	**42.3**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:15	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:15	7440-43-9	
Chromium	**0.24J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:15	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:15	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:15	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.085**	ug/L	0.20	0.085	1	04/30/20 13:52	05/01/20 10:49	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**283**	mg/L	20.0	8.4	1		04/20/20 11:27		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**378**	mg/L	5.0	5.0	1		04/15/20 14:43		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.7**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:20		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-7(R) **Lab ID: 60333703009** Collected: 04/09/20 09:58 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:23	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**14.3**	mg/L	1.0	0.39	1		04/16/20 21:21	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.075	1		04/16/20 21:21	16984-48-8	
Sulfate	**22.9**	mg/L	5.0	1.4	5		04/16/20 22:08	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B1 **Lab ID: 60333703010** Collected: 04/08/20 14:04 Received: 04/10/20 02:30 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	**428**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 17:07	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 17:07	7440-41-7	
Boron	**103**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 17:07	7440-42-8	
Calcium	**134000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 17:07	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 17:07	7440-48-4	
Iron	**20500**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 17:07	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:07	7439-92-1	
Lithium	**58.1**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:07	7439-93-2	
Magnesium	**45200**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 17:07	7439-95-4	
Manganese	**1070**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 17:07	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 17:07	7439-98-7	
Potassium	**8770**	ug/L	500	189	1	04/21/20 14:45	04/22/20 17:07	7440-09-7	
Sodium	**34500**	ug/L	500	107	1	04/21/20 14:45	04/22/20 17:07	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:17	7440-36-0	
Arsenic	**22.4**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:17	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:17	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:17	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:17	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:17	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:51	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**444**	mg/L	20.0	8.4	1		04/17/20 19:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**631**	mg/L	10.0	10.0	1		04/15/20 14:42		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**20.5**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:13		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B1 **Lab ID: 60333703010** Collected: 04/08/20 14:04 Received: 04/10/20 02:30 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
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:20	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**64.0**	mg/L	5.0	1.9	5		04/16/20 22:40	16887-00-6	
Fluoride	**0.14J**	mg/L	0.20	0.075	1		04/16/20 22:24	16984-48-8	
Sulfate	**38.3**	mg/L	5.0	1.4	5		04/16/20 22:40	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B2 **Lab ID: 60333703011** Collected: 04/08/20 12:29 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**404**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 17:09	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 17:09	7440-41-7	
Boron	**38.8J**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 17:09	7440-42-8	
Calcium	**102000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 17:09	7440-70-2	M1
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 17:09	7440-48-4	
Iron	**9150**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 17:09	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:09	7439-92-1	
Lithium	**10.7**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:09	7439-93-2	
Magnesium	**19500**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 17:09	7439-95-4	
Manganese	**235**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 17:09	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 17:09	7439-98-7	
Potassium	**1920**	ug/L	500	189	1	04/21/20 14:45	04/22/20 17:09	7440-09-7	
Sodium	**19400**	ug/L	500	107	1	04/21/20 14:45	04/22/20 17:09	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:18	7440-36-0	
Arsenic	**4.8**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:18	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:18	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:18	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:18	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:54	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**310**	mg/L	20.0	8.4	1		04/20/20 11:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**404**	mg/L	5.0	5.0	1		04/15/20 14:42		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**9.2**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:12		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B2 **Lab ID: 60333703011** Collected: 04/08/20 12:29 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:21	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.6**	mg/L	5.0	1.9	5		04/16/20 15:59	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.075	1		04/16/20 15:43	16984-48-8	
Sulfate	**19.3**	mg/L	5.0	1.4	5		04/16/20 15:59	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-DUP-1 **Lab ID: 60333703012** Collected: 04/09/20 08:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**134**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 17:13	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 17:13	7440-41-7	
Boron	**2460**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 17:13	7440-42-8	
Calcium	**62800**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 17:13	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 17:13	7440-48-4	
Iron	**2560**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 17:13	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:13	7439-92-1	
Lithium	**25.7**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:13	7439-93-2	
Magnesium	**20600**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 17:13	7439-95-4	
Manganese	**504**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 17:13	7439-96-5	
Molybdenum	**74.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 17:13	7439-98-7	
Potassium	**10700**	ug/L	500	189	1	04/21/20 14:45	04/22/20 17:13	7440-09-7	
Sodium	**33900**	ug/L	500	107	1	04/21/20 14:45	04/22/20 17:13	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:20	7440-36-0	
Arsenic	**41.1**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:20	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:20	7440-43-9	
Chromium	**0.24J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:20	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:20	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:56	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**292**	mg/L	20.0	8.4	1		04/20/20 11:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**378**	mg/L	5.0	5.0	1		04/15/20 14:43		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.6**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:20		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-DUP-1 **Lab ID: 60333703012** Collected: 04/09/20 08:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:24	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**14.7**	mg/L	1.0	0.39	1		04/16/20 16:14	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.075	1		04/16/20 16:14	16984-48-8	
Sulfate	**22.5**	mg/L	10.0	2.8	10		04/16/20 16:31	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-FB-1 **Lab ID: 60333703013** Collected: 04/09/20 13:15 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 17:15	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 17:15	7440-41-7	
Boron	**<11.7**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 17:15	7440-42-8	
Calcium	**<32.4**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 17:15	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 17:15	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 17:15	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:15	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 17:15	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 17:15	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 17:15	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 17:15	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	04/21/20 14:45	04/22/20 17:15	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	04/21/20 14:45	04/22/20 17:15	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:12	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:12	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:12	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:12	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:12	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:12	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:58	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		04/20/20 11:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**35.0**	mg/L	5.0	5.0	1		04/15/20 14:43		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0070J**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:20		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-FB-1 **Lab ID: 60333703013** Collected: 04/09/20 13:15 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:24	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/16/20 16:47	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/16/20 16:47	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		04/16/20 16:47	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 650288
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2638746 Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.058	0.20	0.058	04/21/20 13:00	

LABORATORY CONTROL SAMPLE: 2638747

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: 2638748 2638749

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.058	5	5	4.7	4.9	95	99	75-125	4	20	

MATRIX SPIKE SAMPLE: 2638750

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.058	5	4.5	91	75-125	

MATRIX SPIKE SAMPLE: 2638751

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.058	5	4.7	93	75-125	

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 RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 652142
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2645709
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.058	0.20	0.058	05/01/20 10:15	

LABORATORY CONTROL SAMPLE: 2645710

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: 2645711 2645712

Parameter	Units	60334063002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	5.0	4.8	99	97	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 650014
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2638124
Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	04/20/20 12:24	
Beryllium	ug/L	<0.49	1.0	0.49	04/20/20 12:24	
Boron	ug/L	<11.7	100	11.7	04/20/20 12:24	
Calcium	ug/L	<32.4	200	32.4	04/20/20 12:24	
Cobalt	ug/L	<1.5	5.0	1.5	04/20/20 12:24	
Iron	ug/L	<26.8	50.0	26.8	04/20/20 12:24	
Lead	ug/L	<4.6	10.0	4.6	04/20/20 12:24	
Lithium	ug/L	<4.6	10.0	4.6	04/20/20 12:24	
Magnesium	ug/L	<19.7	50.0	19.7	04/20/20 12:24	
Manganese	ug/L	<0.97	5.0	0.97	04/20/20 12:24	
Molybdenum	ug/L	<1.7	20.0	1.7	04/20/20 12:24	
Potassium	ug/L	<189	500	189	04/20/20 12:24	
Sodium	ug/L	<107	500	107	04/20/20 12:24	

LABORATORY CONTROL SAMPLE: 2638125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	977	98	85-115	
Beryllium	ug/L	1000	971	97	85-115	
Boron	ug/L	1000	907	91	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	994	99	85-115	
Iron	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Magnesium	ug/L	10000	10000	100	85-115	
Manganese	ug/L	1000	932	93	85-115	
Molybdenum	ug/L	1000	1060	106	85-115	
Potassium	ug/L	10000	9710	97	85-115	
Sodium	ug/L	10000	10000	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2638126 2638127

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	42.2	1000	1000	1010	1020	97	98	70-130	1	20	
Beryllium	ug/L	<0.49	1000	1000	971	982	97	98	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2638126 2638127

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2260	1000	1000	3220	3220	96	96	70-130	0	20	
Calcium	ug/L	64400	10000	10000	74100	74500	97	101	70-130	1	20	
Cobalt	ug/L	<1.5	1000	1000	975	985	97	99	70-130	1	20	
Iron	ug/L	44.8J	10000	10000	10100	10200	100	101	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	984	992	98	99	70-130	1	20	
Lithium	ug/L	<4.6	1000	1000	1000	1010	100	101	70-130	1	20	
Magnesium	ug/L	5380	10000	10000	14900	15000	95	97	70-130	1	20	
Manganese	ug/L	19.3	1000	1000	952	957	93	94	70-130	1	20	
Molybdenum	ug/L	57.3	1000	1000	1120	1140	106	108	70-130	1	20	
Potassium	ug/L	8130	10000	10000	17900	18000	98	99	70-130	1	20	
Sodium	ug/L	167000	10000	10000	176000	176000	90	92	70-130	0	20	

MATRIX SPIKE SAMPLE: 2638128

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	81.3	1000	1060	98	70-130	
Beryllium	ug/L	<0.49	1000	976	98	70-130	
Boron	ug/L	2300	1000	3210	91	70-130	
Calcium	ug/L	93600	10000	102000	88	70-130	
Cobalt	ug/L	1.5J	1000	976	97	70-130	
Iron	ug/L	2120	10000	12100	100	70-130	
Lead	ug/L	<4.6	1000	984	98	70-130	
Lithium	ug/L	27.1	1000	1040	101	70-130	
Magnesium	ug/L	21600	10000	31000	95	70-130	
Manganese	ug/L	1340	1000	2260	92	70-130	
Molybdenum	ug/L	85.8	1000	1160	107	70-130	
Potassium	ug/L	3280	10000	13100	98	70-130	
Sodium	ug/L	175000	10000	182000	73	70-130	

MATRIX SPIKE SAMPLE: 2638129

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	14.7	1000	991	98	70-130	
Beryllium	ug/L	<0.49	1000	984	98	70-130	
Boron	ug/L	2500	1000	3400	90	70-130	
Calcium	ug/L	7890	10000	17700	98	70-130	
Cobalt	ug/L	<1.5	1000	973	97	70-130	
Iron	ug/L	448	10000	10600	101	70-130	
Lead	ug/L	25.0	1000	999	97	70-130	
Lithium	ug/L	5.7J	1000	1010	100	70-130	
Magnesium	ug/L	213	10000	9800	96	70-130	
Manganese	ug/L	7.4	1000	937	93	70-130	
Molybdenum	ug/L	134	1000	1190	106	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

MATRIX SPIKE SAMPLE: 2638129

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Potassium	ug/L	1940	10000	11600	96	70-130	
Sodium	ug/L	229000	10000	236000	64	70-130	M1

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 650394
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2639248
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	04/22/20 16:26	
Beryllium	ug/L	<0.49	1.0	0.49	04/22/20 16:26	
Boron	ug/L	<11.7	100	11.7	04/22/20 16:26	
Calcium	ug/L	<32.4	200	32.4	04/22/20 16:26	
Cobalt	ug/L	<1.5	5.0	1.5	04/22/20 16:26	
Iron	ug/L	<26.8	50.0	26.8	04/22/20 16:26	
Lead	ug/L	<4.6	10.0	4.6	04/22/20 16:26	
Lithium	ug/L	<4.6	10.0	4.6	04/22/20 16:26	
Magnesium	ug/L	<19.7	50.0	19.7	04/22/20 16:26	
Manganese	ug/L	<0.97	5.0	0.97	04/22/20 16:26	
Molybdenum	ug/L	<1.7	20.0	1.7	04/22/20 16:26	
Potassium	ug/L	<189	500	189	04/22/20 16:26	
Sodium	ug/L	174J	500	107	04/22/20 16:26	

LABORATORY CONTROL SAMPLE: 2639249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1030	103	85-115	
Beryllium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	9980	100	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Iron	ug/L	10000	9910	99	85-115	
Lead	ug/L	1000	1070	107	85-115	
Lithium	ug/L	1000	1020	102	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	9940	99	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2639250 2639251

Parameter	Units	60333704019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	158	1000	1000	1180	1190	103	103	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2639250 2639251

Parameter	Units	60333704019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	ug/L	<0.49	1000	1000	1030	1030	103	103	70-130	0	20	
Boron	ug/L	4490	1000	1000	5470	5500	98	101	70-130	1	20	
Calcium	ug/L	62400	10000	10000	73500	73000	110	106	70-130	1	20	
Cobalt	ug/L	<1.5	1000	1000	989	987	99	99	70-130	0	20	
Iron	ug/L	9440	10000	10000	19500	19400	100	99	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	1030	1040	103	103	70-130	1	20	
Lithium	ug/L	18.9	1000	1000	1030	1040	102	102	70-130	0	20	
Magnesium	ug/L	23000	10000	10000	33000	33400	101	105	70-130	1	20	
Manganese	ug/L	287	1000	1000	1280	1300	99	101	70-130	1	20	
Molybdenum	ug/L	8.2J	1000	1000	1040	1040	103	103	70-130	0	20	
Potassium	ug/L	5830	10000	10000	16100	16000	102	102	70-130	0	20	
Sodium	ug/L	28200	10000	10000	38700	38600	105	104	70-130	0	20	

MATRIX SPIKE SAMPLE: 2639252

Parameter	Units	60333703011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	404	1000	1380	98	70-130	
Beryllium	ug/L	<0.49	1000	999	100	70-130	
Boron	ug/L	38.8J	1000	1040	100	70-130	
Calcium	ug/L	102000	10000	108000	63	70-130	M1
Cobalt	ug/L	<1.5	1000	942	94	70-130	
Iron	ug/L	9150	10000	18200	90	70-130	
Lead	ug/L	<4.6	1000	1010	100	70-130	
Lithium	ug/L	10.7	1000	997	99	70-130	
Magnesium	ug/L	19500	10000	28700	92	70-130	
Manganese	ug/L	235	1000	1220	98	70-130	
Molybdenum	ug/L	<1.7	1000	994	99	70-130	
Potassium	ug/L	1920	10000	11500	96	70-130	
Sodium	ug/L	19400	10000	28800	95	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 648921
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003, 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2634029
Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003, 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	04/16/20 10:51	
Arsenic	ug/L	<0.086	1.0	0.086	04/16/20 10:51	
Cadmium	ug/L	<0.056	0.50	0.056	04/16/20 10:51	
Chromium	ug/L	<0.22	1.0	0.22	04/16/20 10:51	
Selenium	ug/L	<0.18	1.0	0.18	04/16/20 10:51	
Thallium	ug/L	<0.093	1.0	0.093	04/16/20 10:51	

LABORATORY CONTROL SAMPLE: 2634030

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.8	97	85-115	
Arsenic	ug/L	40	39.5	99	85-115	
Cadmium	ug/L	40	39.2	98	85-115	
Chromium	ug/L	40	38.4	96	85-115	
Selenium	ug/L	40	39.7	99	85-115	
Thallium	ug/L	40	36.3	91	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2634031 2634032

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.39J	40	40	39.9	40.1	99	99	70-130	1	20	
Arsenic	ug/L	6.1	40	40	46.9	46.6	102	101	70-130	1	20	
Cadmium	ug/L	<0.056	40	40	37.8	37.8	94	94	70-130	0	20	
Chromium	ug/L	0.22J	40	40	39.2	38.8	97	96	70-130	1	20	
Selenium	ug/L	0.21J	40	40	38.2	37.3	95	93	70-130	2	20	
Thallium	ug/L	<0.093	40	40	34.8	35.9	87	90	70-130	3	20	

MATRIX SPIKE SAMPLE: 2634033

Parameter	Units	60333703013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.097	40	39.3	98	70-130	
Arsenic	ug/L	<0.086	40	39.7	99	70-130	
Cadmium	ug/L	<0.056	40	39.5	99	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

MATRIX SPIKE SAMPLE: 2634033

Parameter	Units	60333703013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	<0.22	40	39.1	98	70-130	
Selenium	ug/L	<0.18	40	38.9	97	70-130	
Thallium	ug/L	<0.093	40	36.9	92	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649746
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2636715
Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/16/20 17:56	

LABORATORY CONTROL SAMPLE: 2636716

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	483	97	90-110	

SAMPLE DUPLICATE: 2636717

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	268	277	3	10	

SAMPLE DUPLICATE: 2636718

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	424	446	5	10	

SAMPLE DUPLICATE: 2636719

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	230	236	3	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649955
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703010

METHOD BLANK: 2637520
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/17/20 17:07	

LABORATORY CONTROL SAMPLE: 2637521

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

SAMPLE DUPLICATE: 2637522

Parameter	Units	60333764001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	234	237	1	10	

SAMPLE DUPLICATE: 2637523

Parameter	Units	60333944003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	372	393	6	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 650115
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703008, 60333703009, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2638264 Matrix: Water
Associated Lab Samples: 60333703008, 60333703009, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/20/20 10:49	

LABORATORY CONTROL SAMPLE: 2638265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	470	94	90-110	

SAMPLE DUPLICATE: 2638266

Parameter	Units	60333703011 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	310	322	4	10	

SAMPLE DUPLICATE: 2638267

Parameter	Units	60334170002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	162	160	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 648753
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2633341 Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/10/20 15:50	

LABORATORY CONTROL SAMPLE: 2633342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	941	94	80-120	

SAMPLE DUPLICATE: 2633343

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	673	707	5	10	

SAMPLE DUPLICATE: 2633344

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	830	865	4	10	

SAMPLE DUPLICATE: 2633345

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	732	771	5	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649345
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2635218
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/15/20 14:41	

LABORATORY CONTROL SAMPLE: 2635219

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	927	93	80-120	

SAMPLE DUPLICATE: 2635221

Parameter	Units	60334063002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1320	13	10	D6

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 648172
QC Batch Method: SM 3500-Fe B#4
Analysis Method: SM 3500-Fe B#4
Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2631000
Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.035	0.20	0.035	04/08/20 15:04	H6

LABORATORY CONTROL SAMPLE: 2631001

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	2	2.2	110	90-110	H6

SAMPLE DUPLICATE: 2631002

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	<0.035	<0.035		20	H6

SAMPLE DUPLICATE: 2631003

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	0.56	0.57	2	20	H6

SAMPLE DUPLICATE: 2631004

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	0.15J	0.15J		20	H6

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649003
QC Batch Method: SM 3500-Fe B#4
Analysis Method: SM 3500-Fe B#4
Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 2634192
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.035	0.20	0.035	04/15/20 09:09	H6

LABORATORY CONTROL SAMPLE: 2634193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	2	2.1	106	90-110	H6

SAMPLE DUPLICATE: 2634194

Parameter	Units	60333704026 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	<0.035	<0.035		20	H6

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 648622
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2632857 Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/10/20 08:55	

LABORATORY CONTROL SAMPLE: 2632858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.46	93	80-120	

MATRIX SPIKE SAMPLE: 2632859

Parameter	Units	60333703001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.41	82	75-125	

MATRIX SPIKE SAMPLE: 2632861

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.30	59	75-125	M1

MATRIX SPIKE SAMPLE: 2632863

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	1.5	1	2.2	66	75-125	E,M1

SAMPLE DUPLICATE: 2632860

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

SAMPLE DUPLICATE: 2632862

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

SAMPLE DUPLICATE: 2632864

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	1.5	1.5	1	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649342
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011

METHOD BLANK: 2635206
Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/15/20 11:10	

LABORATORY CONTROL SAMPLE: 2635207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.54	108	80-120	

MATRIX SPIKE SAMPLE: 2635208

Parameter	Units	60334330002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.32	0.5	0.84	104	75-125	

SAMPLE DUPLICATE: 2635209

Parameter	Units	60333914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.065	0.069	6	20	

SAMPLE DUPLICATE: 2635210

Parameter	Units	60333703007 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649343
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703012, 60333703013

METHOD BLANK: 2635211
Matrix: Water
Associated Lab Samples: 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/15/20 11:23	

LABORATORY CONTROL SAMPLE: 2635212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.54	107	80-120	

MATRIX SPIKE SAMPLE: 2635213

Parameter	Units	60333703012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.56	107	75-125	

SAMPLE DUPLICATE: 2635214

Parameter	Units	60334352002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 648910
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703001, 60333703002, 60333703003

METHOD BLANK: 2633977 Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.45J	1.0	0.39	04/13/20 09:17	
Fluoride	mg/L	<0.075	0.20	0.075	04/13/20 09:17	
Sulfate	mg/L	<0.28	1.0	0.28	04/13/20 09:17	

METHOD BLANK: 2634421 Matrix: Water
Associated Lab Samples: 60333703001, 60333703002, 60333703003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/14/20 12:28	
Fluoride	mg/L	<0.075	0.20	0.075	04/14/20 12:28	
Sulfate	mg/L	<0.28	1.0	0.28	04/14/20 12:28	

LABORATORY CONTROL SAMPLE: 2633978

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

LABORATORY CONTROL SAMPLE: 2634422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633979 2633980

Parameter	Units	20149646004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	11500	5000	5000	16600	16700	60	63	80-120	1	15	
Fluoride	mg/L	80.4	500	500	464	466	77	77	80-120	0	15	M1
Sulfate	mg/L	2780	1000	1000	3850	3850	107	107	80-120	0	15	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633981 2633982

Parameter	Units	20149646008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13800	5000	5000	19500	19400	113	111	80-120	1	15	
Fluoride	mg/L	31.1J	500	500	478	476	89	89	80-120	0	15	
Sulfate	mg/L	3580	5000	5000	8600	8570	100	100	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633983 2633984

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	19.6	10	10	30.3	30.3	107	107	80-120	0	15	
Fluoride	mg/L	0.43	2.5	2.5	2.8	2.8	96	96	80-120	0	15	
Sulfate	mg/L	259	100	100	365	361	106	102	80-120	1	15	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649602
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010

METHOD BLANK: 2636204 Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/16/20 12:38	
Fluoride	mg/L	<0.075	0.20	0.075	04/16/20 12:38	
Sulfate	mg/L	<0.28	1.0	0.28	04/16/20 12:38	

METHOD BLANK: 2636234 Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/14/20 09:07	
Fluoride	mg/L	<0.075	0.20	0.075	04/14/20 09:07	
Sulfate	mg/L	<0.28	1.0	0.28	04/14/20 09:07	

METHOD BLANK: 2637250 Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/17/20 08:41	
Fluoride	mg/L	<0.075	0.20	0.075	04/17/20 08:41	
Sulfate	mg/L	<0.28	1.0	0.28	04/17/20 08:41	

LABORATORY CONTROL SAMPLE: 2636205

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	2.3	92	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 2636235

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

LABORATORY CONTROL SAMPLE: 2637251

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	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2636206 2636207

Parameter	Units	60333949003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4850	100	100	4970	4970	120	120	80-120	0	15	E
Fluoride	mg/L	ND	50	50	52.1	54.6	102	107	80-120	5	15	
Sulfate	mg/L	165	100	100	275	287	110	122	80-120	4	15	M1

MATRIX SPIKE SAMPLE: 2636208

Parameter	Units	60334213001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	29.1	50	104	149	80-120	M1
Fluoride	mg/L	0.30	2.5	2.3	80	80-120	
Sulfate	mg/L	1.2	125	399	319	80-120	M1

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 649657
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333703011, 60333703012, 60333703013

METHOD BLANK: 2636519 Matrix: Water
Associated Lab Samples: 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/16/20 14:55	
Fluoride	mg/L	<0.075	0.20	0.075	04/16/20 14:55	
Sulfate	mg/L	<0.28	1.0	0.28	04/16/20 14:55	

METHOD BLANK: 2637185 Matrix: Water
Associated Lab Samples: 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/15/20 09:07	
Fluoride	mg/L	<0.075	0.20	0.075	04/15/20 09:07	
Sulfate	mg/L	<0.28	1.0	0.28	04/15/20 09:07	

METHOD BLANK: 2637223 Matrix: Water
Associated Lab Samples: 60333703011, 60333703012, 60333703013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/17/20 08:41	
Fluoride	mg/L	<0.075	0.20	0.075	04/17/20 08:41	
Sulfate	mg/L	<0.28	1.0	0.28	04/17/20 08:41	

LABORATORY CONTROL SAMPLE: 2636520

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	97	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 2637186

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	98	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

LABORATORY CONTROL SAMPLE: 2637224

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	5.0	99	90-110	

MATRIX SPIKE SAMPLE: 2636521

Parameter	Units	60334170006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	14.1	5	20.5	130	80-120	E,M1
Fluoride	mg/L	0.80	2.5	3.7	115	80-120	
Sulfate	mg/L	1000	500	1610	120	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2636522 2636523

Parameter	Units	60334329003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	97.6	25	25	128	126	121	113	80-120	2	15	E,M1
Fluoride	mg/L	0.37	2.5	2.5	2.9	2.9	100	103	80-120	3	15	
Sulfate	mg/L	66.5	25	25	96.6	93.5	121	108	80-120	3	15	M1

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-1 **Lab ID: 60333703001** Collected: 04/06/20 10:02 Received: 04/08/20 03:40 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	**0.149 ± 0.227 (0.366)** **C:NA T:82%**	pCi/L	04/28/20 15:36	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.719 ± 0.521 (1.02)** **C:68% T:72%**	pCi/L	04/27/20 12:51	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-2 **Lab ID: 60333703002** Collected: 04/06/20 14:54 Received: 04/08/20 03:40 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	**0.291 ± 0.471 (0.820)** **C:NA T:89%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.705 ± 0.608 (1.23)** **C:73% T:65%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-3 **Lab ID: 60333703003** Collected: 04/07/20 11:18 Received: 04/08/20 03:40 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.200 ± 0.305 (0.801) C:NA T:75%**	pCi/L	04/28/20 13:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.350 ± 0.452 (0.962) C:72% T:91%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MS-1-MW-1 **Lab ID: 60333703004** Collected: 04/06/20 10:02 Received: 04/08/20 03:40 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	**98.9 %REC +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 15:36	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**101.94 %REC ± NA (NA) C:NA T:NA**	pCi/L	04/27/20 15:56	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MSD-1-MW-1 **Lab ID: 60333703005** Collected: 04/06/20 10:02 Received: 04/08/20 03:40 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**96.8 %REC 2.15 RPD +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 15:36	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**101.45 %REC 0.48 RPD ± NA (NA) C:NA T:NA**	pCi/L	04/27/20 15:56	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-4 **Lab ID: 60333703006** Collected: 04/08/20 12:20 Received: 04/10/20 02:30 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	**0.265 ± 0.430 (0.748) C:NA T:95%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.11 ± 0.507 (0.859) C:79% T:79%**	pCi/L	04/28/20 14:24	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-5 **Lab ID: 60333703007** Collected: 04/08/20 14:35 Received: 04/10/20 02:30 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	**0.331 ± 0.344 (0.512)** **C:NA T:94%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.634 ± 0.477 (0.943)** **C:76% T:79%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-6 **Lab ID: 60333703008** Collected: 04/09/20 12:38 Received: 04/10/20 02:30 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	**0.436 ± 0.403 (0.587)** **C:NA T:91%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**2.00 ± 0.617 (0.794)** **C:78% T:84%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-7(R) **Lab ID: 60333703009** Collected: 04/09/20 09:58 Received: 04/10/20 02:30 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	**1.31 ± 0.629 (0.579)** **C:NA T:79%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.606 ± 0.426 (0.826)** **C:75% T:84%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B1 **Lab ID: 60333703010** Collected: 04/08/20 14:04 Received: 04/10/20 02:30 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	**0.885 ± 0.479 (0.483) C:NA T:99%**	pCi/L	04/30/20 13:08	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.982 ± 0.508 (0.914) C:76% T:84%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-MW-B2 **Lab ID: 60333703011** Collected: 04/08/20 12:29 Received: 04/10/20 02:30 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	**0.515 ± 0.439 (0.616)** **C:NA T:95%**	pCi/L	04/30/20 13:08	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.867 ± 0.480 (0.872)** **C:72% T:83%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-DUP-1 **Lab ID: 60333703012** Collected: 04/09/20 08:00 Received: 04/10/20 02:30 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	**0.642 ± 0.529 (0.765) C:NA T:88%**	pCi/L	04/30/20 13:08	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.43 ± 0.556 (0.858) C:74% T:80%**	pCi/L	04/28/20 14:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Sample: R-FB-1 **Lab ID: 60333703013** Collected: 04/09/20 13:15 Received: 04/10/20 02:30 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	**0.186 ± 0.284 (0.457)** **C:NA T:79%**	pCi/L	04/30/20 13:08	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.687 ± 0.424 (0.782)** **C:75% T:76%**	pCi/L	04/28/20 14:25	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 392084 | 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: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 1898507 | Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0998 ± 0.366 (0.704) C:NA T:84%	pCi/L	04/30/20 12:30	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 391981
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60333703002, 60333703003

METHOD BLANK: 1897890
Matrix: Water
Associated Lab Samples: 60333703002, 60333703003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0925 ± 0.385 (0.734) C:NA T:83%	pCi/L	04/28/20 13:34	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 391982
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60333703002, 60333703003

METHOD BLANK: 1897893
Matrix: Water
Associated Lab Samples: 60333703002, 60333703003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.414 (0.864) C:72% T:89%	pCi/L	04/25/20 17:35	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 392087 | 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: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

METHOD BLANK: 1898522 | Matrix: Water
Associated Lab Samples: 60333703006, 60333703007, 60333703008, 60333703009, 60333703010, 60333703011, 60333703012, 60333703013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.704 ± 0.393 (0.716) C:80% T:82%	pCi/L	04/28/20 11:07	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch:	391987	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: 60333703001, 60333703004, 60333703005

METHOD BLANK: 1897905 Matrix: Water

Associated Lab Samples: 60333703001, 60333703004, 60333703005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.569 ± 0.408 (0.787) C:69% T:79%	pCi/L	04/27/20 12:52	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

QC Batch: 391986
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60333703001, 60333703004, 60333703005

METHOD BLANK: 1897904
Matrix: Water
Associated Lab Samples: 60333703001, 60333703004, 60333703005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.337 ± 0.434 (0.723) C:NA T:86%	pCi/L	04/28/20 15:36	

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QUALIFIERS

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

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.

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 (%)

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333703001	**R-MW-1**	EPA 200.7	650014	EPA 200.7	650020
60333703002	**R-MW-2**	EPA 200.7	650014	EPA 200.7	650020
60333703003	**R-MW-3**	EPA 200.7	650014	EPA 200.7	650020
60333703006	**R-MW-4**	EPA 200.7	650394	EPA 200.7	650454
60333703007	**R-MW-5**	EPA 200.7	650394	EPA 200.7	650454
60333703008	**R-MW-6**	EPA 200.7	650394	EPA 200.7	650454
60333703009	**R-MW-7(R)**	EPA 200.7	650394	EPA 200.7	650454
60333703010	**R-MW-B1**	EPA 200.7	650394	EPA 200.7	650454
60333703011	**R-MW-B2**	EPA 200.7	650394	EPA 200.7	650454
60333703012	**R-DUP-1**	EPA 200.7	650394	EPA 200.7	650454
60333703013	**R-FB-1**	EPA 200.7	650394	EPA 200.7	650454
60333703001	**R-MW-1**	EPA 200.8	648921	EPA 200.8	649085
60333703002	**R-MW-2**	EPA 200.8	648921	EPA 200.8	649085
60333703003	**R-MW-3**	EPA 200.8	648921	EPA 200.8	649085
60333703006	**R-MW-4**	EPA 200.8	648921	EPA 200.8	649085
60333703007	**R-MW-5**	EPA 200.8	648921	EPA 200.8	649085
60333703008	**R-MW-6**	EPA 200.8	648921	EPA 200.8	649085
60333703009	**R-MW-7(R)**	EPA 200.8	648921	EPA 200.8	649085
60333703010	**R-MW-B1**	EPA 200.8	648921	EPA 200.8	649085
60333703011	**R-MW-B2**	EPA 200.8	648921	EPA 200.8	649085
60333703012	**R-DUP-1**	EPA 200.8	648921	EPA 200.8	649085
60333703013	**R-FB-1**	EPA 200.8	648921	EPA 200.8	649085
60333703001	**R-MW-1**	EPA 7470	650288	EPA 7470	650300
60333703002	**R-MW-2**	EPA 7470	650288	EPA 7470	650300
60333703003	**R-MW-3**	EPA 7470	650288	EPA 7470	650300
60333703006	**R-MW-4**	EPA 7470	652142	EPA 7470	652280
60333703007	**R-MW-5**	EPA 7470	652142	EPA 7470	652280
60333703008	**R-MW-6**	EPA 7470	652142	EPA 7470	652280
60333703009	**R-MW-7(R)**	EPA 7470	652142	EPA 7470	652280
60333703010	**R-MW-B1**	EPA 7470	652142	EPA 7470	652280
60333703011	**R-MW-B2**	EPA 7470	652142	EPA 7470	652280
60333703012	**R-DUP-1**	EPA 7470	652142	EPA 7470	652280
60333703013	**R-FB-1**	EPA 7470	652142	EPA 7470	652280
60333703001	**R-MW-1**	EPA 903.1	391986		
60333703002	**R-MW-2**	EPA 903.1	391981		
60333703003	**R-MW-3**	EPA 903.1	391981		
60333703004	**R-MS-1-MW-1**	EPA 903.1	391986		
60333703005	**R-MSD-1-MW-1**	EPA 903.1	391986		
60333703006	**R-MW-4**	EPA 903.1	392084		
60333703007	**R-MW-5**	EPA 903.1	392084		
60333703008	**R-MW-6**	EPA 903.1	392084		
60333703009	**R-MW-7(R)**	EPA 903.1	392084		
60333703010	**R-MW-B1**	EPA 903.1	392084		
60333703011	**R-MW-B2**	EPA 903.1	392084		
60333703012	**R-DUP-1**	EPA 903.1	392084		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333703013	**R-FB-1**	EPA 903.1	392084		
60333703001	**R-MW-1**	EPA 904.0	391987		
60333703002	**R-MW-2**	EPA 904.0	391982		
60333703003	**R-MW-3**	EPA 904.0	391982		
60333703004	**R-MS-1-MW-1**	EPA 904.0	391987		
60333703005	**R-MSD-1-MW-1**	EPA 904.0	391987		
60333703006	**R-MW-4**	EPA 904.0	392087		
60333703007	**R-MW-5**	EPA 904.0	392087		
60333703008	**R-MW-6**	EPA 904.0	392087		
60333703009	**R-MW-7(R)**	EPA 904.0	392087		
60333703010	**R-MW-B1**	EPA 904.0	392087		
60333703011	**R-MW-B2**	EPA 904.0	392087		
60333703012	**R-DUP-1**	EPA 904.0	392087		
60333703013	**R-FB-1**	EPA 904.0	392087		
60333703001	**R-MW-1**	SM 2320B	649746		
60333703002	**R-MW-2**	SM 2320B	649746		
60333703003	**R-MW-3**	SM 2320B	649746		
60333703006	**R-MW-4**	SM 2320B	649955		
60333703007	**R-MW-5**	SM 2320B	649955		
60333703008	**R-MW-6**	SM 2320B	650115		
60333703009	**R-MW-7(R)**	SM 2320B	650115		
60333703010	**R-MW-B1**	SM 2320B	649955		
60333703011	**R-MW-B2**	SM 2320B	650115		
60333703012	**R-DUP-1**	SM 2320B	650115		
60333703013	**R-FB-1**	SM 2320B	650115		
60333703001	**R-MW-1**	SM 2540C	648753		
60333703002	**R-MW-2**	SM 2540C	648753		
60333703003	**R-MW-3**	SM 2540C	648753		
60333703006	**R-MW-4**	SM 2540C	649345		
60333703007	**R-MW-5**	SM 2540C	649345		
60333703008	**R-MW-6**	SM 2540C	649345		
60333703009	**R-MW-7(R)**	SM 2540C	649345		
60333703010	**R-MW-B1**	SM 2540C	649345		
60333703011	**R-MW-B2**	SM 2540C	649345		
60333703012	**R-DUP-1**	SM 2540C	649345		
60333703013	**R-FB-1**	SM 2540C	649345		
60333703001	**R-MW-1**	SM 3500-Fe B#4	650444		
60333703002	**R-MW-2**	SM 3500-Fe B#4	650444		
60333703003	**R-MW-3**	SM 3500-Fe B#4	650444		
60333703006	**R-MW-4**	SM 3500-Fe B#4	652021		
60333703007	**R-MW-5**	SM 3500-Fe B#4	652021		
60333703008	**R-MW-6**	SM 3500-Fe B#4	652021		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND ENERGY RCPA
Pace Project No.: 60333703

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333703009	**R-MW-7(R)**	SM 3500-Fe B#4	652021		
60333703010	**R-MW-B1**	SM 3500-Fe B#4	652021		
60333703011	**R-MW-B2**	SM 3500-Fe B#4	652021		
60333703012	**R-DUP-1**	SM 3500-Fe B#4	652021		
60333703013	**R-FB-1**	SM 3500-Fe B#4	652021		
60333703001	**R-MW-1**	SM 3500-Fe B#4	648172		
60333703002	**R-MW-2**	SM 3500-Fe B#4	648172		
60333703003	**R-MW-3**	SM 3500-Fe B#4	648172		
60333703006	**R-MW-4**	SM 3500-Fe B#4	649003		
60333703007	**R-MW-5**	SM 3500-Fe B#4	649003		
60333703008	**R-MW-6**	SM 3500-Fe B#4	649003		
60333703009	**R-MW-7(R)**	SM 3500-Fe B#4	649003		
60333703010	**R-MW-B1**	SM 3500-Fe B#4	649003		
60333703011	**R-MW-B2**	SM 3500-Fe B#4	649003		
60333703012	**R-DUP-1**	SM 3500-Fe B#4	649003		
60333703013	**R-FB-1**	SM 3500-Fe B#4	649003		
60333703001	**R-MW-1**	SM 4500-S-2 D	648622		
60333703002	**R-MW-2**	SM 4500-S-2 D	648622		
60333703003	**R-MW-3**	SM 4500-S-2 D	648622		
60333703006	**R-MW-4**	SM 4500-S-2 D	649342		
60333703007	**R-MW-5**	SM 4500-S-2 D	649342		
60333703008	**R-MW-6**	SM 4500-S-2 D	649342		
60333703009	**R-MW-7(R)**	SM 4500-S-2 D	649342		
60333703010	**R-MW-B1**	SM 4500-S-2 D	649342		
60333703011	**R-MW-B2**	SM 4500-S-2 D	649342		
60333703012	**R-DUP-1**	SM 4500-S-2 D	649343		
60333703013	**R-FB-1**	SM 4500-S-2 D	649343		
60333703001	**R-MW-1**	EPA 300.0	648910		
60333703002	**R-MW-2**	EPA 300.0	648910		
60333703003	**R-MW-3**	EPA 300.0	648910		
60333703006	**R-MW-4**	EPA 300.0	649602		
60333703007	**R-MW-5**	EPA 300.0	649602		
60333703008	**R-MW-6**	EPA 300.0	649602		
60333703009	**R-MW-7(R)**	EPA 300.0	649602		
60333703010	**R-MW-B1**	EPA 300.0	649602		
60333703011	**R-MW-B2**	EPA 300.0	649657		
60333703012	**R-DUP-1**	EPA 300.0	649657		
60333703013	**R-FB-1**	EPA 300.0	649657		

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Sample Condition Upon Receipt

WO# : 60333703

60333703

Client Name: Golder Assoc.

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

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

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

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

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

Cooler Temperature (°C): As-read 1.0, 0.6, 0.4, 0.8, 17.6, 15.7 Corr. Factor +0.1 Corrected 1.1, 0.7, 0.5, 0.9, 17.7, 15.8

Date and initials of person examining contents: 4/8/20 D

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	FE2+
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot #	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution _____

Project Manager Review: Jami Church Date 4/8/20

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #5
Project Name:	Ameren Rush Island Energy Center RCPA
Project Number:	153140602.0002A

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N	N	N	N	N	N	N			60333703
1	R-MW-1	WT	G			4/6/20	1002		6	2		3					1		1	1	1	1	1	1	1	1	1			
2	R-MW-2	WT	G			4/6/20	1454		6	2		3					1		1	1	1	1	1	1	1	1	1			
3	R-MW-3	WT	G			4/7/20	1118		6	2		3					1		1	1	1	1	1	1	1	1	1			
4	R-MW-4	WT	G																											
5	R-MW-5	WT	G																											
6	R-MW-6	WT	G																											
7	R-MW-7(r)	WT	G																											
8	R-MW-B1	WT	G																											
9	R-MW-B2	WT	G																											
10	R-DUP-1	WT	G																											
11	R-FB-1	WT	G																											
12	R-MS-1 - MW-1	WT	G			4/6/20	1002		6	2		3					1		1	1	1	1	1	1	1	1	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	[signature] / Golder	4/7/20	1640	EBrockett / Pace	4/8/20	0340	
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl							

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/07/20

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

Pace Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #5
Project Name:	Ameren Rush Island Energy Center RCPA
Project Number:	153140602.0002A

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/GRAB DATE	COLLECTED Composite End/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N	N	N	N	N	N	N		
1	R-MSD-1 -MW1	WT	G			4/6	1002		6	2	3						1	1	1	1	1	1	1	1	1	1			60337703
2		WT	G																										
3		WT	G																										
4		WT	G																										
5		WT	G																										
6		WT	G																										
7		WT	G																										
8		WT	G																										
9		WT	G																										
10		WT	G																										
11		WT	G																										
12		WT	G																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature]	4/7/20	1640	EBrockett / Pace	4/8/20	0340	
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl							

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Eric Schnieder					
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 04/07/20				

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

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

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Sample Condition Upon Receipt

WO# : 60333703

60333703

Client Name: Golder Assoc

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

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

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

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

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

Cooler Temperature (°C): As-read 1.2, 0.6 Corr. Factor +0.1 Corrected 1.3, 0.7, 0.8

Date and initials of person examining contents: 4/10/20

Temperature should be above freezing to 6°C 0.7, 1.7, 19.5, 22.1 1.8, 19.6, 22.2

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	FEdt
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	no analysis marked for R-MW6
Samples contain multiple phases? Matrix: VA	☐Yes ☑No ☐N/A	logged in as other samples are.
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # 603173, 603222	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jami Church Date 4/10/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #5
Project Name:	Ameren Rush Island Energy Center RCPA
Project Number:	153140602.0002A

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/GRAB DATE	COLLECTED Composite End/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N	N	N	N	N	N	N		
1	R-MW-1	WT	G																										
2	R-MW-2	WT	G																										
3	R-MW-3	WT	G																										
4	R-MW-4	WT	G			4/8/20	1220		6	2		3					1	X	X	X	X	X	X	X	X	X	X		
5	R-MW-5	WT	G			↓	1435		↓	↓		↓					↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
6	R-MW-6	WT	G			4/9/20	1238																						
7	R-MW-7(r)	WT	G			↓	0958		6	2		3					1	X	X	X	X	X	X	X	X	X	X		
8	R-MW-B1	WT	G			4/8/20	1404		6	2		3					1	X	X	X	X	X	X	X	X	X	X		
9	R-MW-B2	WT	G			↓	1229		↓	↓		↓					↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
10	R-DUP-1	WT	G			4/9/20	—		6	2		3					1	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
11	R-FB-1	WT	G			↓	1315		↓	↓		↓					↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
12	R-MS-1	WT	G																										

60333703

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature]	4/9/20	1735	EBrackett / Pace	4/10/20	0230
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl						

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	1.3 0.7	Y	Y	Y
	0.8 1.8			
	19.6 22.2	N		

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Eric Schnieder
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 04/09/20

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

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

MEMORANDUM

DATE January 21, 2021 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER - RCPA – DETECTION AND ASSESSMENT MONITORING - DATA PACKAGE 60333703REV1

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

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

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Ballwin, Missouri, USA 63021

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 01/21/2021

Laboratory: Pace Analytical - KS
SDG #: 60333703rev1
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals); EPA 7470 (Mercury); SM2320B (Alkalinity); SM2540C (TDS); SM3500-Fe B#4 (Ferric, Ferrous Iron); SM4500-S-2 D (Total Sulfide); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-MW-1, R-MW-2, R-MW-3, R-MW-4, R-MW-5, R-MW-6, R-MW-7(R), R-MW-B1, R-MW-B2, R-MS-1-MW-1, R-MSD-1-MW-1, R-DUP-1, R-FB-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			04/06 - 04/09/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			
f) Field QC noted?	x			
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?		x		No analysis marked for R-MW-6, lab logged in as other samples are
b) Was the COC signed by both field and laboratory personnel?	x			
c) Were samples received in good condition?	x			

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			DUP-1 @ R-MW-7(R)
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?	x			

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

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

Comments/Notes:

Dilutions: Chloride, Sulfate, and Sulfide were diluted in several samples.

MB: 2639248: Sodium (174 J); 2633977: Chloride (0.45 J)

FB: FB-1 @ R-MW-6, Total Dissolved Solids (35.0), Ferric Iron (0.0070 J)

DUP-1: RPD exceeds limit (20%) for Magnesium, Radium-226 detected in DUP and non-detect in sample

MS/MSD: Calcium % Rec low for MS of -011.

Ferrous Iron was analyzed outside of hold time in all samples.

Data packet 60333703 was originally validated on 5/12/2020. Revision due to Sample ID corrections.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-MW-7(R)	Sodium	35000	J	Detected in method blank
"	Magnesium	21500	J	RPD criteria not met, Result > PQL
"	Radium-226	1.31 ± 0.629	UJ	Detected in DUP, non-detect in sample
DUP-1	"	0.642 ± 0.529	J	"
"	Sodium	33900	J	Detected in method blank
"	Magnesium	20600	J	RPD criteria not met, Result > PQL
R-MW-B1	Sodium	34500	J	Detected in method blank
R-MW-B2	Sodium	19400	J	"
R-MW-B2	Calcium	102000	J	MS % Rec low
R-MW-1	Ferrous Iron	0.035	UJ	Analyzed outside of hold time, analyte not detected
R-MW-2	"	0.11	J	Analyzed outside of hold time
R-MW-3	"	0.16	J	"
R-MW-4	"	0.035	UJ	Analyzed outside of hold time, analyte not detected
R-MW-5	"	0.035	UJ	"
R-MW-6	"	0.035	UJ	"
R-MW-7(R)	"	0.035	UJ	"
R-MW-B1	"	0.035	UJ	"
R-MW-B2	"	0.035	UJ	"
R-DUP-1	"	0.035	UJ	"
R-FB-1	"	0.035	UJ	"

Signature: Ann Mullaffarty Date: 01/21/2021

Pace Analytical Services, LLC
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Lenexa, KS 66219
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May 01, 2020

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

RE: Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between April 08, 2020 and April 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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

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CERTIFICATIONS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Pace Analytical Services Pennsylvania

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

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60333704001	**R-CA-FB-1**	Water	04/07/20 10:15	04/08/20 03:40
60333704002	**R-P17S**	Water	04/06/20 13:33	04/08/20 03:40
60333704003	**R-P17I**	Water	04/06/20 11:28	04/08/20 03:40
60333704004	**R-P17D**	Water	04/06/20 13:04	04/08/20 03:40
60333704005	**R-P19S**	Water	04/07/20 09:25	04/08/20 03:40
60333704006	**R-P-19I**	Water	04/07/20 09:57	04/08/20 03:40
60333704007	**R-P19D**	Water	04/07/20 10:32	04/08/20 03:40
60333704008	**R-P21S**	Water	04/07/20 12:09	04/08/20 03:40
60333704009	**R-P21I**	Water	04/07/20 12:50	04/08/20 03:40
60333704010	**R-P21D**	Water	04/07/20 13:30	04/08/20 03:40
60333704011	**R-P29D**	Water	04/07/20 12:15	04/08/20 03:40
60333704012	**R-P30S**	Water	04/07/20 09:20	04/08/20 03:40
60333704013	**R-P31S**	Water	04/07/20 10:40	04/08/20 03:40
60333704014	**R-CA-DUP-1**	Water	04/06/20 08:00	04/08/20 03:40
60333704015	**R-CA-MS-2-P17S**	Water	04/06/20 13:33	04/08/20 03:40
60333704016	**R-CA-MSD-2-P17S**	Water	04/06/20 13:33	04/08/20 03:40
60333704017	**R-CA-MS-1-P17I**	Water	04/06/20 11:25	04/08/20 03:40
60333704018	**R-CA-MSD-1-P17I**	Water	04/06/20 11:25	04/08/20 03:40
60333704019	**R-P05S**	Water	04/09/20 14:15	04/10/20 02:30
60333704020	**R-P10S**	Water	04/08/20 15:30	04/10/20 02:30
60333704021	**R-P16S**	Water	04/09/20 14:46	04/10/20 02:30
60333704022	**R-CA-FB-2**	Water	04/08/20 16:05	04/10/20 02:30
60333704023	**R-P22S**	Water	04/08/20 10:55	04/10/20 02:30
60333704024	**R-P22D**	Water	04/08/20 10:00	04/10/20 02:30
60333704025	**R-P29S**	Water	04/08/20 10:58	04/10/20 02:30
60333704026	**R-CA-DUP-2**	Water	04/08/20 08:00	04/10/20 02:30

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60333704001	**R-CA-FB-1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704002	**R-P17S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704003	**R-P17I**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704004	**R-P17D**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704005	**R-P19S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704006	**R-P-19I**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704007	**R-P19D**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704008	**R-P21S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704009	**R-P21I**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704010	**R-P21D**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704011	**R-P29D**	EPA 200.7	JLH	13	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704012	**R-P30S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704013	**R-P31S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704014	**R-CA-DUP-1**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	MGS	1	PASI-K
		SM 2540C	JWR	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	CNB	3	PASI-K
60333704015	**R-CA-MS-2-P17S**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60333704016	**R-CA-MSD-2-P17S**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60333704017	**R-CA-MS-1-P17I**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60333704018	**R-CA-MSD-1-P17I**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60333704019	**R-P05S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704020	**R-P10S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704021	**R-P16S**	EPA 200.7	JLH	13	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704022	**R-CA-FB-2**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704023	**R-P22S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704024	**R-P22D**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704025	**R-P29S**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60333704026	**R-CA-DUP-2**	EPA 200.7	JLH	13	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		SM 3500-Fe B#4	JWR	1	PASI-K
		SM 4500-S-2 D	JWR	1	PASI-K
		EPA 300.0	LDB	3	PASI-K

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

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-1 **Lab ID: 60333704001** Collected: 04/07/20 10:15 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:43	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:43	7440-41-7	
Boron	**<11.7**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:43	7440-42-8	
Calcium	**<32.4**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:43	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:43	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:43	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:43	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:43	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:43	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:43	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:43	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:43	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:43	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:28	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:28	7440-38-2	
Cadmium	**0.084J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:28	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:28	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:28	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:28	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:16	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		04/16/20 20:18		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**5.5**	mg/L	5.0	5.0	1		04/10/20 15:53		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0011J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/08/20 15:14		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-1 **Lab ID: 60333704001** Collected: 04/07/20 10:15 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:43	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/13/20 12:42	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/13/20 12:42	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		04/13/20 12:42	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17S **Lab ID: 60333704002** Collected: 04/06/20 13:33 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**81.3**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:45	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:45	7440-41-7	
Boron	**2300**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:45	7440-42-8	
Calcium	**93600**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:45	7440-70-2	
Cobalt	**1.5J**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:45	7440-48-4	
Iron	**2120**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:45	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:45	7439-92-1	
Lithium	**27.1**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:45	7439-93-2	
Magnesium	**21600**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:45	7439-95-4	
Manganese	**1340**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:45	7439-96-5	
Molybdenum	**85.8**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:45	7439-98-7	
Potassium	**3280**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:45	7440-09-7	
Sodium	**175000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:45	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:30	7440-36-0	
Arsenic	**38.5**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:30	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:30	7440-43-9	
Chromium	**0.22J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:30	7440-47-3	
Selenium	**0.37J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:30	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:30	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:18	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**424**	mg/L	20.0	8.4	1		04/16/20 18:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**830**	mg/L	10.0	10.0	1		04/10/20 15:51		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.0**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.15J**	mg/L	0.20	0.035	1		04/08/20 15:09		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17S **Lab ID: 60333704002** Collected: 04/06/20 13:33 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:33	18496-25-8	M1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**37.0**	mg/L	2.0	0.78	2		04/13/20 14:49	16887-00-6	R1
Fluoride	**0.59**	mg/L	0.20	0.075	1		04/13/20 15:36	16984-48-8	R1
Sulfate	**218**	mg/L	20.0	5.6	20		04/13/20 13:30	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17I **Lab ID: 60333704003** Collected: 04/06/20 11:28 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**14.7**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:49	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:49	7440-41-7	
Boron	**2500**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:49	7440-42-8	
Calcium	**7890**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:49	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:49	7440-48-4	
Iron	**448**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:49	7439-89-6	
Lead	**25.0**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:49	7439-92-1	
Lithium	**5.7J**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:49	7439-93-2	
Magnesium	**213**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:49	7439-95-4	
Manganese	**7.4**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:49	7439-96-5	
Molybdenum	**134**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:49	7439-98-7	
Potassium	**1940**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:49	7440-09-7	
Sodium	**229000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:49	7440-23-5	M1
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.59J**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:59	7440-36-0	
Arsenic	**71.3**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:59	7440-38-2	
Cadmium	**0.71**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:59	7440-43-9	
Chromium	**1.1**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:59	7440-47-3	
Selenium	**2.2**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:59	7782-49-2	M1
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:59	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:27	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**230**	mg/L	20.0	8.4	1		04/16/20 19:04		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**732**	mg/L	10.0	10.0	1		04/10/20 15:51		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.56**	mg/L	0.20	0.035	1		04/08/20 15:06		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17I **Lab ID: 60333704003** Collected: 04/06/20 11:28 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**1.5**	mg/L	0.10	0.078	2		04/10/20 09:36	18496-25-8	M1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**22.9**	mg/L	2.0	0.78	2		04/13/20 17:41	16887-00-6	
Fluoride	**2.0**	mg/L	0.20	0.075	1		04/13/20 18:28	16984-48-8	
Sulfate	**251**	mg/L	20.0	5.6	20		04/13/20 16:24	14808-79-8	M1,R1

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17D **Lab ID: 60333704004** Collected: 04/06/20 13:04 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**104**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:53	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:53	7440-41-7	
Boron	**6960**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:53	7440-42-8	
Calcium	**46100**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:53	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:53	7440-48-4	
Iron	**2980**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:53	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:53	7439-92-1	
Lithium	**41.1**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:53	7439-93-2	
Magnesium	**10200**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:53	7439-95-4	
Manganese	**425**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:53	7439-96-5	
Molybdenum	**683**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:53	7439-98-7	
Potassium	**6950**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:53	7440-09-7	
Sodium	**131000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:53	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:04	7440-36-0	
Arsenic	**1.3**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:04	7440-38-2	
Cadmium	**0.27J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:04	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:04	7440-47-3	
Selenium	**0.33J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:04	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:32	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**140**	mg/L	20.0	8.4	1		04/16/20 19:15		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**609**	mg/L	10.0	10.0	1		04/10/20 15:52		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.8**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.18J**	mg/L	0.20	0.035	1		04/08/20 15:07		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17D **Lab ID: 60333704004** Collected: 04/06/20 13:04 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.043J**	mg/L	0.050	0.039	1		04/10/20 09:38	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**28.5**	mg/L	2.0	0.78	2		04/13/20 19:32	16887-00-6	
Fluoride	**0.60**	mg/L	0.20	0.075	1		04/13/20 19:16	16984-48-8	
Sulfate	**292**	mg/L	20.0	5.6	20		04/13/20 19:48	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19S **Lab ID: 60333704005** Collected: 04/07/20 09:25 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**492**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:56	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:56	7440-41-7	
Boron	**2080**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:56	7440-42-8	
Calcium	**210000**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:56	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:56	7440-48-4	
Iron	**30900**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:56	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:56	7439-92-1	
Lithium	**52.2**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:56	7439-93-2	
Magnesium	**39000**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:56	7439-95-4	
Manganese	**1630**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:56	7439-96-5	
Molybdenum	**6.1J**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:56	7439-98-7	
Potassium	**8490**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:56	7440-09-7	
Sodium	**58500**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:56	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:05	7440-36-0	
Arsenic	**29.0**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:05	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:05	7440-43-9	
Chromium	**0.27J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:05	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:05	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:34	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**724**	mg/L	20.0	8.4	1		04/16/20 20:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**851**	mg/L	13.3	13.3	1		04/10/20 15:53		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**18.2**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**12.7**	mg/L	1.0	0.18	5		04/08/20 15:13		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19S **Lab ID: 60333704005** Collected: 04/07/20 09:25 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:44	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**29.8**	mg/L	2.0	0.78	2		04/13/20 20:51	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.075	1		04/13/20 20:03	16984-48-8	
Sulfate	**33.0**	mg/L	2.0	0.56	2		04/13/20 20:51	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P-19I **Lab ID: 60333704006** Collected: 04/07/20 09:57 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**11.0**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 12:58	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 12:58	7440-41-7	
Boron	**4960**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 12:58	7440-42-8	
Calcium	**7020**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 12:58	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 12:58	7440-48-4	
Iron	**80.9**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 12:58	7439-89-6	
Lead	**13.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:58	7439-92-1	
Lithium	**14.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 12:58	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 12:58	7439-95-4	
Manganese	**1.6J**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 12:58	7439-96-5	
Molybdenum	**236**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 12:58	7439-98-7	
Potassium	**12200**	ug/L	500	189	1	04/18/20 17:45	04/20/20 12:58	7440-09-7	
Sodium	**273000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 12:58	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**4.7**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:07	7440-36-0	
Arsenic	**271**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:07	7440-38-2	
Cadmium	**0.50**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:07	7440-43-9	
Chromium	**0.33J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:07	7440-47-3	
Selenium	**2.2**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:07	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:36	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**299**	mg/L	20.0	8.4	1		04/16/20 20:31		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1010**	mg/L	10.0	10.0	1		04/10/20 15:53		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.17J**	mg/L	0.20	0.035	1		04/08/20 15:13		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P-19I **Lab ID: 60333704006** Collected: 04/07/20 09:57 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**4.0**	mg/L	0.25	0.20	5		04/10/20 09:45	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**21.4**	mg/L	2.0	0.78	2		04/13/20 21:39	16887-00-6	
Fluoride	**1.5**	mg/L	0.20	0.075	1		04/13/20 21:23	16984-48-8	
Sulfate	**298**	mg/L	50.0	13.9	50		04/13/20 21:54	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19D **Lab ID: 60333704007** Collected: 04/07/20 10:32 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**91.4**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:00	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:00	7440-41-7	
Boron	**10600**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:00	7440-42-8	
Calcium	**29400**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:00	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:00	7440-48-4	
Iron	**1840**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:00	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:00	7439-92-1	
Lithium	**16.0**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:00	7439-93-2	
Magnesium	**4230**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:00	7439-95-4	
Manganese	**216**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:00	7439-96-5	
Molybdenum	**975**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:00	7439-98-7	
Potassium	**3560**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:00	7440-09-7	
Sodium	**181000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:00	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:09	7440-36-0	
Arsenic	**0.71J**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:09	7440-38-2	
Cadmium	**0.38J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:09	7440-43-9	
Chromium	**0.48J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:09	7440-47-3	
Selenium	**0.38J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:09	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:09	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:39	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**228**	mg/L	20.0	8.4	1		04/17/20 14:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**606**	mg/L	10.0	10.0	1		04/13/20 13:59		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.92**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.92**	mg/L	0.20	0.035	1		04/08/20 15:14		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19D **Lab ID: 60333704007** Collected: 04/07/20 10:32 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:45	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**27.0**	mg/L	2.0	0.78	2		04/13/20 22:26	16887-00-6	
Fluoride	**2.0**	mg/L	0.20	0.075	1		04/13/20 22:10	16984-48-8	
Sulfate	**213**	mg/L	20.0	5.6	20		04/13/20 22:42	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21S **Lab ID: 60333704008** Collected: 04/07/20 12:09 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**581**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:02	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:02	7440-41-7	
Boron	**386**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:02	7440-42-8	
Calcium	**277000**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:02	7440-70-2	
Cobalt	**3.0J**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:02	7440-48-4	
Iron	**43700**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:02	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:02	7439-92-1	
Lithium	**20.4**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:02	7439-93-2	
Magnesium	**62900**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:02	7439-95-4	
Manganese	**4360**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:02	7439-96-5	
Molybdenum	**4.1J**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:02	7439-98-7	
Potassium	**5630**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:02	7440-09-7	
Sodium	**30700**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:02	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:11	7440-36-0	
Arsenic	**82.5**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:11	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:11	7440-43-9	
Chromium	**0.23J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:11	7440-47-3	
Selenium	**0.36J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:11	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:11	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:41	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**884**	mg/L	20.0	8.4	1		04/17/20 14:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1030**	mg/L	13.3	13.3	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**31.4**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**12.2**	mg/L	1.0	0.18	5		04/08/20 15:17		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21S **Lab ID: 60333704008** Collected: 04/07/20 12:09 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:46	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**36.3**	mg/L	2.0	0.78	2		04/14/20 00:01	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.075	1		04/13/20 22:58	16984-48-8	
Sulfate	**39.7**	mg/L	5.0	1.4	5		04/14/20 09:34	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21I **Lab ID: 60333704009** Collected: 04/07/20 12:50 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**23.6**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:48	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:48	7440-41-7	
Boron	**2420**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:48	7440-42-8	
Calcium	**13600**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:48	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:48	7440-48-4	
Iron	**340**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:48	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:48	7439-92-1	
Lithium	**15.3**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:48	7439-93-2	
Magnesium	**1400**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:48	7439-95-4	
Manganese	**37.9**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:48	7439-96-5	
Molybdenum	**156**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:48	7439-98-7	
Potassium	**3990**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:48	7440-09-7	
Sodium	**108000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:48	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:16	7440-36-0	
Arsenic	**5.9**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:16	7440-38-2	
Cadmium	**0.11J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:16	7440-43-9	
Chromium	**0.48J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:16	7440-47-3	
Selenium	**0.64J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:16	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:43	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**136**	mg/L	20.0	8.4	1		04/17/20 14:31		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**352**	mg/L	5.0	5.0	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.0J**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.34**	mg/L	0.20	0.035	1		04/08/20 15:18		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21I **Lab ID: 60333704009** Collected: 04/07/20 12:50 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.12**	mg/L	0.050	0.039	1		04/10/20 09:46	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**29.9**	mg/L	2.0	0.78	2		04/14/20 00:49	16887-00-6	
Fluoride	**0.93**	mg/L	0.20	0.075	1		04/14/20 00:33	16984-48-8	
Sulfate	**87.9**	mg/L	10.0	2.8	10		04/14/20 10:05	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21D **Lab ID: 60333704010** Collected: 04/07/20 13:30 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**441**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:50	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:50	7440-41-7	
Boron	**3490**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:50	7440-42-8	
Calcium	**314000**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:50	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:50	7440-48-4	
Iron	**11300**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:50	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:50	7439-92-1	
Lithium	**249**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:50	7439-93-2	
Magnesium	**87500**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:50	7439-95-4	
Manganese	**1640**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:50	7439-96-5	
Molybdenum	**196**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:50	7439-98-7	
Potassium	**16200**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:50	7440-09-7	
Sodium	**627000**	ug/L	1000	214	2	04/18/20 17:45	04/21/20 10:01	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:17	7440-36-0	
Arsenic	**0.65J**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:17	7440-38-2	
Cadmium	**0.095J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:17	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:17	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:17	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:17	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:45	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**226**	mg/L	20.0	8.4	1		04/17/20 14:36		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**3530**	mg/L	100	100	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**8.5**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**2.8**	mg/L	0.20	0.035	1		04/08/20 15:18		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21D **Lab ID: 60333704010** Collected: 04/07/20 13:30 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:46	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**1470**	mg/L	200	77.5	200		04/14/20 10:21	16887-00-6	
Fluoride	**0.78**	mg/L	0.20	0.075	1		04/14/20 01:05	16984-48-8	
Sulfate	**196**	mg/L	10.0	2.8	10		04/14/20 01:21	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29D **Lab ID: 60333704011** Collected: 04/07/20 12:15 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**148**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:53	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:53	7440-41-7	
Boron	**85.8J**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:53	7440-42-8	
Calcium	**96400**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:53	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:53	7440-48-4	
Iron	**4180**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:53	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:53	7439-92-1	
Lithium	**46.7**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:53	7439-93-2	
Magnesium	**27800**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:53	7439-95-4	
Manganese	**140**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:53	7439-96-5	
Molybdenum	**1.9J**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:53	7439-98-7	
Potassium	**5010**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:53	7440-09-7	
Sodium	**71400**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:53	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:19	7440-36-0	
Arsenic	**1.0**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:19	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:19	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:19	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:19	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:19	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:48	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**318**	mg/L	20.0	8.4	1		04/17/20 14:42		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**547**	mg/L	10.0	10.0	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**3.2**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.99**	mg/L	0.20	0.035	1		04/08/20 15:18		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29D **Lab ID: 60333704011** Collected: 04/07/20 12:15 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/10/20 09:46	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**117**	mg/L	10.0	3.9	10		04/14/20 02:08	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.075	1		04/14/20 01:36	16984-48-8	
Sulfate	**21.0**	mg/L	2.0	0.56	2		04/14/20 01:52	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P30S **Lab ID: 60333704012** Collected: 04/07/20 09:20 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**85.4**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:55	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:55	7440-41-7	
Boron	**786**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:55	7440-42-8	
Calcium	**122000**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:55	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:55	7440-48-4	
Iron	**60.0**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:55	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:55	7439-92-1	
Lithium	**34.1**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:55	7439-93-2	
Magnesium	**21900**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:55	7439-95-4	
Manganese	**249**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:55	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:55	7439-98-7	
Potassium	**6140**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:55	7440-09-7	
Sodium	**54600**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:55	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:21	7440-36-0	
Arsenic	**0.90J**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:21	7440-38-2	
Cadmium	**0.072J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:21	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:21	7440-47-3	
Selenium	**0.24J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:21	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:21	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:55	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**288**	mg/L	20.0	8.4	1		04/17/20 14:47		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**617**	mg/L	10.0	10.0	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.060**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/08/20 15:10		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P30S **Lab ID: 60333704012** Collected: 04/07/20 09:20 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/14/20 15:07	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**40.3**	mg/L	10.0	3.9	10		04/14/20 03:12	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.075	1		04/14/20 02:24	16984-48-8	
Sulfate	**149**	mg/L	10.0	2.8	10		04/14/20 03:12	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P31S **Lab ID: 60333704013** Collected: 04/07/20 10:40 Received: 04/08/20 03:40 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.

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	**130**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:57	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:57	7440-41-7	
Boron	**294**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:57	7440-42-8	
Calcium	**62300**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:57	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:57	7440-48-4	
Iron	**4160**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:57	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:57	7439-92-1	
Lithium	**10.4**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:57	7439-93-2	
Magnesium	**11000**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:57	7439-95-4	
Manganese	**866**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:57	7439-96-5	
Molybdenum	**7.8J**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:57	7439-98-7	
Potassium	**3970**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:57	7440-09-7	
Sodium	**11500**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:57	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:22	7440-36-0	
Arsenic	**15.7**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:22	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:22	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:22	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:22	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:22	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:57	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**213**	mg/L	20.0	8.4	1		04/17/20 14:51		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**255**	mg/L	5.0	5.0	1		04/13/20 14:00		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**4.0**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.18J**	mg/L	0.20	0.035	1		04/08/20 15:14		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P31S **Lab ID: 60333704013** Collected: 04/07/20 10:40 Received: 04/08/20 03:40 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.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/14/20 15:08	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**2.8**	mg/L	1.0	0.39	1		04/14/20 03:27	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.075	1		04/14/20 03:27	16984-48-8	
Sulfate	**13.3**	mg/L	1.0	0.28	1		04/14/20 03:27	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-1 **Lab ID: 60333704014** Collected: 04/06/20 08:00 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**102**	ug/L	5.0	1.8	1	04/18/20 17:45	04/20/20 13:59	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/18/20 17:45	04/20/20 13:59	7440-41-7	
Boron	**6740**	ug/L	100	11.7	1	04/18/20 17:45	04/20/20 13:59	7440-42-8	
Calcium	**45400**	ug/L	200	32.4	1	04/18/20 17:45	04/20/20 13:59	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/18/20 17:45	04/20/20 13:59	7440-48-4	
Iron	**2940**	ug/L	50.0	26.8	1	04/18/20 17:45	04/20/20 13:59	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:59	7439-92-1	
Lithium	**39.5**	ug/L	10.0	4.6	1	04/18/20 17:45	04/20/20 13:59	7439-93-2	
Magnesium	**9930**	ug/L	50.0	19.7	1	04/18/20 17:45	04/20/20 13:59	7439-95-4	
Manganese	**410**	ug/L	5.0	0.97	1	04/18/20 17:45	04/20/20 13:59	7439-96-5	
Molybdenum	**676**	ug/L	20.0	1.7	1	04/18/20 17:45	04/20/20 13:59	7439-98-7	
Potassium	**6800**	ug/L	500	189	1	04/18/20 17:45	04/20/20 13:59	7440-09-7	
Sodium	**133000**	ug/L	500	107	1	04/18/20 17:45	04/20/20 13:59	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 12:26	7440-36-0	
Arsenic	**1.3**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 12:26	7440-38-2	
Cadmium	**0.28J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 12:26	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 12:26	7440-47-3	
Selenium	**0.24J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 12:26	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 12:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/21/20 09:32	04/21/20 13:59	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**132**	mg/L	20.0	8.4	1		04/16/20 19:20		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**625**	mg/L	10.0	10.0	1		04/10/20 15:52		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.8**	mg/L	0.050		1		04/21/20 16:59	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.19J**	mg/L	0.20	0.035	1		04/08/20 15:05		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-1 **Lab ID: 60333704014** Collected: 04/06/20 08:00 Received: 04/08/20 03:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.043J**	mg/L	0.050	0.039	1		04/10/20 09:38	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**28.5**	mg/L	10.0	3.9	10		04/14/20 03:59	16887-00-6	
Fluoride	**0.63**	mg/L	0.20	0.075	1		04/14/20 03:43	16984-48-8	
Sulfate	**288**	mg/L	20.0	5.6	20		04/14/20 10:37	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P05S **Lab ID: 60333704019** Collected: 04/09/20 14:15 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**158**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:30	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:30	7440-41-7	
Boron	**4490**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:30	7440-42-8	
Calcium	**62400**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:30	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:30	7440-48-4	
Iron	**9440**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:30	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:30	7439-92-1	
Lithium	**18.9**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:30	7439-93-2	
Magnesium	**23000**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:30	7439-95-4	
Manganese	**287**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:30	7439-96-5	
Molybdenum	**8.2J**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:30	7439-98-7	
Potassium	**5830**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:30	7440-09-7	
Sodium	**28200**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:30	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:35	7440-36-0	
Arsenic	**163**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:35	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:35	7440-43-9	
Chromium	**0.31J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:35	7440-47-3	
Selenium	**0.21J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:35	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:35	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:19	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**270**	mg/L	20.0	8.4	1		04/20/20 11:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**357**	mg/L	5.0	5.0	1		04/14/20 15:29		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**9.3**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**0.17J**	mg/L	0.20	0.035	1		04/15/20 09:21		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P05S **Lab ID: 60333704019** Collected: 04/09/20 14:15 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:23	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**24.0**	mg/L	2.0	0.78	2		04/16/20 15:00	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.075	1		04/16/20 14:44	16984-48-8	
Sulfate	**15.6**	mg/L	1.0	0.28	1		04/16/20 14:44	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P10S **Lab ID: 60333704020** Collected: 04/08/20 15:30 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**116**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:40	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:40	7440-41-7	
Boron	**2240**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:40	7440-42-8	
Calcium	**63400**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:40	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:40	7440-48-4	
Iron	**645**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:40	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:40	7439-92-1	
Lithium	**17.0**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:40	7439-93-2	
Magnesium	**11200**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:40	7439-95-4	
Manganese	**1190**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:40	7439-96-5	
Molybdenum	**108**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:40	7439-98-7	
Potassium	**4470**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:40	7440-09-7	
Sodium	**91600**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:40	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:37	7440-36-0	
Arsenic	**6.2**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:37	7440-38-2	
Cadmium	**0.085J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:37	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:37	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:37	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:22	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**228**	mg/L	20.0	8.4	1		04/17/20 18:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**537**	mg/L	10.0	10.0	1		04/14/20 15:29		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.62**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:14		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P10S **Lab ID: 60333704020** Collected: 04/08/20 15:30 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:18	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**19.7**	mg/L	2.0	0.78	2		04/16/20 16:04	16887-00-6	
Fluoride	**0.51**	mg/L	0.20	0.075	1		04/16/20 15:48	16984-48-8	
Sulfate	**134**	mg/L	20.0	5.6	20		04/16/20 16:20	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P16S **Lab ID: 60333704021** Collected: 04/09/20 14:46 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**99.9**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:42	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:42	7440-41-7	
Boron	**2950**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:42	7440-42-8	
Calcium	**177000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:42	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:42	7440-48-4	
Iron	**66.2**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:42	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:42	7439-92-1	
Lithium	**41.7**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:42	7439-93-2	
Magnesium	**31300**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:42	7439-95-4	
Manganese	**563**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:42	7439-96-5	
Molybdenum	**35.1**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:42	7439-98-7	
Potassium	**7250**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:42	7440-09-7	
Sodium	**96200**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:42	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:38	7440-36-0	
Arsenic	**2.4**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:38	7440-38-2	
Cadmium	**0.092J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:38	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:38	7440-47-3	
Selenium	**0.42J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:38	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:38	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:24	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**412**	mg/L	20.0	8.4	1		04/20/20 11:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**952**	mg/L	10.0	10.0	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.066**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:21		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P16S **Lab ID: 60333704021** Collected: 04/09/20 14:46 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:23	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**51.8**	mg/L	10.0	3.9	10		04/16/20 17:07	16887-00-6	
Fluoride	**0.14J**	mg/L	0.20	0.075	1		04/16/20 16:35	16984-48-8	
Sulfate	**274**	mg/L	25.0	6.9	25		04/17/20 11:51	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-2 **Lab ID: 60333704022** Collected: 04/08/20 16:05 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:44	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:44	7440-41-7	
Boron	**<11.7**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:44	7440-42-8	
Calcium	**<32.4**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:44	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:44	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:44	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:44	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:44	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:44	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:44	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:44	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:44	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:44	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:45	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:45	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:45	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:45	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:45	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:45	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:26	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		04/17/20 18:41		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**15.5**	mg/L	5.0	5.0	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.00000000 0010J**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:19		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-2 **Lab ID: 60333704022** Collected: 04/08/20 16:05 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:18	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		04/16/20 17:39	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		04/16/20 17:39	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		04/16/20 17:39	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22S **Lab ID: 60333704023** Collected: 04/08/20 10:55 Received: 04/10/20 02:30 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	**230**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:46	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:46	7440-41-7	
Boron	**464**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:46	7440-42-8	
Calcium	**267000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:46	7440-70-2	
Cobalt	**2.6J**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:46	7440-48-4	
Iron	**2500**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:46	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:46	7439-92-1	
Lithium	**66.1**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:46	7439-93-2	
Magnesium	**60700**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:46	7439-95-4	
Manganese	**937**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:46	7439-96-5	
Molybdenum	**9.0J**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:46	7439-98-7	
Potassium	**8130**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:46	7440-09-7	
Sodium	**58800**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:46	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:40	7440-36-0	
Arsenic	**1.9**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:40	7440-38-2	
Cadmium	**0.079J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:40	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:40	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:40	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:40	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:28	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**680**	mg/L	20.0	8.4	1		04/17/20 18:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1130**	mg/L	13.3	13.3	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.5**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:11		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22S **Lab ID: 60333704023** Collected: 04/08/20 10:55 Received: 04/10/20 02:30 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
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:18	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**48.1**	mg/L	10.0	3.9	10		04/16/20 18:10	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.075	1		04/16/20 17:55	16984-48-8	
Sulfate	**250**	mg/L	25.0	6.9	25		04/17/20 12:54	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22D **Lab ID: 60333704024** Collected: 04/08/20 10:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**73.1**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:48	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:48	7440-41-7	
Boron	**10300**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:48	7440-42-8	
Calcium	**25900**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:48	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:48	7440-48-4	
Iron	**1230**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:48	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:48	7439-92-1	
Lithium	**26.4**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:48	7439-93-2	
Magnesium	**3490**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:48	7439-95-4	
Manganese	**85.1**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:48	7439-96-5	
Molybdenum	**357**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:48	7439-98-7	
Potassium	**4930**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:48	7440-09-7	
Sodium	**168000**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:48	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:47	7440-36-0	
Arsenic	**10.8**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:47	7440-38-2	
Cadmium	**0.18J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:47	7440-43-9	
Chromium	**1.0**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:47	7440-47-3	
Selenium	**0.74J**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:47	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:47	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:31	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**277**	mg/L	20.0	8.4	1		04/17/20 18:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**539**	mg/L	10.0	10.0	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**0.10**	mg/L	0.050		1		04/27/20 17:06	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**1.1**	mg/L	0.20	0.035	1		04/15/20 09:11		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22D **Lab ID: 60333704024** Collected: 04/08/20 10:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.054**	mg/L	0.050	0.039	1		04/15/20 11:19	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**25.8**	mg/L	5.0	1.9	5		04/16/20 19:14	16887-00-6	
Fluoride	**2.1**	mg/L	0.20	0.075	1		04/16/20 18:58	16984-48-8	
Sulfate	**80.1**	mg/L	5.0	1.4	5		04/16/20 19:14	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29S **Lab ID: 60333704025** Collected: 04/08/20 10:58 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**377**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:50	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:50	7440-41-7	
Boron	**87.3J**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:50	7440-42-8	
Calcium	**141000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:50	7440-70-2	
Cobalt	**3.5J**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:50	7440-48-4	
Iron	**7960**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:50	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:50	7439-92-1	
Lithium	**29.2**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:50	7439-93-2	
Magnesium	**35600**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:50	7439-95-4	
Manganese	**585**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:50	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:50	7439-98-7	
Potassium	**5620**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:50	7440-09-7	
Sodium	**16400**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:50	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:49	7440-36-0	
Arsenic	**25.8**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:49	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:49	7440-43-9	
Chromium	**0.86J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:49	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:49	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:49	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:33	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**474**	mg/L	20.0	8.4	1		04/17/20 19:01		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**562**	mg/L	10.0	10.0	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**8.0**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:12		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29S **Lab ID: 60333704025** Collected: 04/08/20 10:58 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**0.040J**	mg/L	0.050	0.039	1		04/15/20 11:19	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**17.9**	mg/L	1.0	0.39	1		04/16/20 19:30	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.075	1		04/16/20 19:30	16984-48-8	
Sulfate	**23.0**	mg/L	2.0	0.56	2		04/17/20 13:10	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-2 **Lab ID: 60333704026** Collected: 04/08/20 08:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**233**	ug/L	5.0	1.8	1	04/21/20 14:45	04/22/20 16:53	7440-39-3	
Beryllium	**<0.49**	ug/L	1.0	0.49	1	04/21/20 14:45	04/22/20 16:53	7440-41-7	
Boron	**477**	ug/L	100	11.7	1	04/21/20 14:45	04/22/20 16:53	7440-42-8	
Calcium	**273000**	ug/L	200	32.4	1	04/21/20 14:45	04/22/20 16:53	7440-70-2	
Cobalt	**2.7J**	ug/L	5.0	1.5	1	04/21/20 14:45	04/22/20 16:53	7440-48-4	
Iron	**2560**	ug/L	50.0	26.8	1	04/21/20 14:45	04/22/20 16:53	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:53	7439-92-1	
Lithium	**69.7**	ug/L	10.0	4.6	1	04/21/20 14:45	04/22/20 16:53	7439-93-2	
Magnesium	**61900**	ug/L	50.0	19.7	1	04/21/20 14:45	04/22/20 16:53	7439-95-4	
Manganese	**956**	ug/L	5.0	0.97	1	04/21/20 14:45	04/22/20 16:53	7439-96-5	
Molybdenum	**8.6J**	ug/L	20.0	1.7	1	04/21/20 14:45	04/22/20 16:53	7439-98-7	
Potassium	**8210**	ug/L	500	189	1	04/21/20 14:45	04/22/20 16:53	7440-09-7	
Sodium	**59800**	ug/L	500	107	1	04/21/20 14:45	04/22/20 16:53	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	04/13/20 13:32	04/16/20 11:50	7440-36-0	
Arsenic	**2.0**	ug/L	1.0	0.086	1	04/13/20 13:32	04/16/20 11:50	7440-38-2	
Cadmium	**0.080J**	ug/L	0.50	0.056	1	04/13/20 13:32	04/16/20 11:50	7440-43-9	
Chromium	**0.23J**	ug/L	1.0	0.22	1	04/13/20 13:32	04/16/20 11:50	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	04/13/20 13:32	04/16/20 11:50	7782-49-2	
Thallium	**<0.093**	ug/L	1.0	0.093	1	04/13/20 13:32	04/16/20 11:50	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
	Pace Analytical Services - Kansas City								
Mercury	**<0.058**	ug/L	0.20	0.058	1	04/30/20 13:52	05/01/20 10:40	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**693**	mg/L	20.0	8.4	1		04/17/20 19:18		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1130**	mg/L	13.3	13.3	1		04/14/20 15:30		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferric	**2.6**	mg/L	0.050		1		04/29/20 18:18	7439-89-6	
Iron, Ferrous	Analytical Method: SM 3500-Fe B#4								
	Pace Analytical Services - Kansas City								
Iron, Ferrous	**<0.035**	mg/L	0.20	0.035	1		04/15/20 09:10		H6

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-2 **Lab ID: 60333704026** Collected: 04/08/20 08:00 Received: 04/10/20 02:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D Pace Analytical Services - Kansas City								
Sulfide, Total	**<0.039**	mg/L	0.050	0.039	1		04/15/20 11:20	18496-25-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	**48.9**	mg/L	10.0	3.9	10		04/17/20 23:20	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.075	1		04/16/20 19:46	16984-48-8	
Sulfate	**252**	mg/L	50.0	13.9	50		04/17/20 23:36	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 650288
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

METHOD BLANK: 2638746
Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.058	0.20	0.058	04/21/20 13:00	

LABORATORY CONTROL SAMPLE: 2638747

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: 2638748 2638749

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.058	5	5	4.7	4.9	95	99	75-125	4	20	

MATRIX SPIKE SAMPLE: 2638750

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.058	5	4.5	91	75-125	

MATRIX SPIKE SAMPLE: 2638751

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.058	5	4.7	93	75-125	

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 RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 652142
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2645709
Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.058	0.20	0.058	05/01/20 10:15	

LABORATORY CONTROL SAMPLE: 2645710

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: 2645711 2645712

Parameter	Units	60334063002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	5.0	4.8	99	97	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 650014
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

METHOD BLANK: 2638124
Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	04/20/20 12:24	
Beryllium	ug/L	<0.49	1.0	0.49	04/20/20 12:24	
Boron	ug/L	<11.7	100	11.7	04/20/20 12:24	
Calcium	ug/L	<32.4	200	32.4	04/20/20 12:24	
Cobalt	ug/L	<1.5	5.0	1.5	04/20/20 12:24	
Iron	ug/L	<26.8	50.0	26.8	04/20/20 12:24	
Lead	ug/L	<4.6	10.0	4.6	04/20/20 12:24	
Lithium	ug/L	<4.6	10.0	4.6	04/20/20 12:24	
Magnesium	ug/L	<19.7	50.0	19.7	04/20/20 12:24	
Manganese	ug/L	<0.97	5.0	0.97	04/20/20 12:24	
Molybdenum	ug/L	<1.7	20.0	1.7	04/20/20 12:24	
Potassium	ug/L	<189	500	189	04/20/20 12:24	
Sodium	ug/L	<107	500	107	04/20/20 12:24	

LABORATORY CONTROL SAMPLE: 2638125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	977	98	85-115	
Beryllium	ug/L	1000	971	97	85-115	
Boron	ug/L	1000	907	91	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	994	99	85-115	
Iron	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Magnesium	ug/L	10000	10000	100	85-115	
Manganese	ug/L	1000	932	93	85-115	
Molybdenum	ug/L	1000	1060	106	85-115	
Potassium	ug/L	10000	9710	97	85-115	
Sodium	ug/L	10000	10000	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2638126 2638127

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	42.2	1000	1000	1010	1020	97	98	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2638126 2638127

Parameter	Units	60333703001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	ug/L	<0.49	1000	1000	971	982	97	98	70-130	1	20	
Boron	ug/L	2260	1000	1000	3220	3220	96	96	70-130	0	20	
Calcium	ug/L	64400	10000	10000	74100	74500	97	101	70-130	1	20	
Cobalt	ug/L	<1.5	1000	1000	975	985	97	99	70-130	1	20	
Iron	ug/L	44.8J	10000	10000	10100	10200	100	101	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	984	992	98	99	70-130	1	20	
Lithium	ug/L	<4.6	1000	1000	1000	1010	100	101	70-130	1	20	
Magnesium	ug/L	5380	10000	10000	14900	15000	95	97	70-130	1	20	
Manganese	ug/L	19.3	1000	1000	952	957	93	94	70-130	1	20	
Molybdenum	ug/L	57.3	1000	1000	1120	1140	106	108	70-130	1	20	
Potassium	ug/L	8130	10000	10000	17900	18000	98	99	70-130	1	20	
Sodium	ug/L	167000	10000	10000	176000	176000	90	92	70-130	0	20	

MATRIX SPIKE SAMPLE: 2638128

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	81.3	1000	1060	98	70-130	
Beryllium	ug/L	<0.49	1000	976	98	70-130	
Boron	ug/L	2300	1000	3210	91	70-130	
Calcium	ug/L	93600	10000	102000	88	70-130	
Cobalt	ug/L	1.5J	1000	976	97	70-130	
Iron	ug/L	2120	10000	12100	100	70-130	
Lead	ug/L	<4.6	1000	984	98	70-130	
Lithium	ug/L	27.1	1000	1040	101	70-130	
Magnesium	ug/L	21600	10000	31000	95	70-130	
Manganese	ug/L	1340	1000	2260	92	70-130	
Molybdenum	ug/L	85.8	1000	1160	107	70-130	
Potassium	ug/L	3280	10000	13100	98	70-130	
Sodium	ug/L	175000	10000	182000	73	70-130	

MATRIX SPIKE SAMPLE: 2638129

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	14.7	1000	991	98	70-130	
Beryllium	ug/L	<0.49	1000	984	98	70-130	
Boron	ug/L	2500	1000	3400	90	70-130	
Calcium	ug/L	7890	10000	17700	98	70-130	
Cobalt	ug/L	<1.5	1000	973	97	70-130	
Iron	ug/L	448	10000	10600	101	70-130	
Lead	ug/L	25.0	1000	999	97	70-130	
Lithium	ug/L	5.7J	1000	1010	100	70-130	
Magnesium	ug/L	213	10000	9800	96	70-130	
Manganese	ug/L	7.4	1000	937	93	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

MATRIX SPIKE SAMPLE: 2638129

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	134	1000	1190	106	70-130	
Potassium	ug/L	1940	10000	11600	96	70-130	
Sodium	ug/L	229000	10000	236000	64	70-130	M1

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 650394
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2639248
Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	04/22/20 16:26	
Beryllium	ug/L	<0.49	1.0	0.49	04/22/20 16:26	
Boron	ug/L	<11.7	100	11.7	04/22/20 16:26	
Calcium	ug/L	<32.4	200	32.4	04/22/20 16:26	
Cobalt	ug/L	<1.5	5.0	1.5	04/22/20 16:26	
Iron	ug/L	<26.8	50.0	26.8	04/22/20 16:26	
Lead	ug/L	<4.6	10.0	4.6	04/22/20 16:26	
Lithium	ug/L	<4.6	10.0	4.6	04/22/20 16:26	
Magnesium	ug/L	<19.7	50.0	19.7	04/22/20 16:26	
Manganese	ug/L	<0.97	5.0	0.97	04/22/20 16:26	
Molybdenum	ug/L	<1.7	20.0	1.7	04/22/20 16:26	
Potassium	ug/L	<189	500	189	04/22/20 16:26	
Sodium	ug/L	174J	500	107	04/22/20 16:26	

LABORATORY CONTROL SAMPLE: 2639249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1030	103	85-115	
Beryllium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	9980	100	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Iron	ug/L	10000	9910	99	85-115	
Lead	ug/L	1000	1070	107	85-115	
Lithium	ug/L	1000	1020	102	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	9940	99	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2639250 2639251

Parameter	Units	60333704019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	158	1000	1000	1180	1190	103	103	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2639250 2639251

Parameter	Units	60333704019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	ug/L	<0.49	1000	1000	1030	1030	103	103	70-130	0	20	
Boron	ug/L	4490	1000	1000	5470	5500	98	101	70-130	1	20	
Calcium	ug/L	62400	10000	10000	73500	73000	110	106	70-130	1	20	
Cobalt	ug/L	<1.5	1000	1000	989	987	99	99	70-130	0	20	
Iron	ug/L	9440	10000	10000	19500	19400	100	99	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	1030	1040	103	103	70-130	1	20	
Lithium	ug/L	18.9	1000	1000	1030	1040	102	102	70-130	0	20	
Magnesium	ug/L	23000	10000	10000	33000	33400	101	105	70-130	1	20	
Manganese	ug/L	287	1000	1000	1280	1300	99	101	70-130	1	20	
Molybdenum	ug/L	8.2J	1000	1000	1040	1040	103	103	70-130	0	20	
Potassium	ug/L	5830	10000	10000	16100	16000	102	102	70-130	0	20	
Sodium	ug/L	28200	10000	10000	38700	38600	105	104	70-130	0	20	

MATRIX SPIKE SAMPLE: 2639252

Parameter	Units	60333703011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	404	1000	1380	98	70-130	
Beryllium	ug/L	<0.49	1000	999	100	70-130	
Boron	ug/L	38.8J	1000	1040	100	70-130	
Calcium	ug/L	102000	10000	108000	63	70-130	M1
Cobalt	ug/L	<1.5	1000	942	94	70-130	
Iron	ug/L	9150	10000	18200	90	70-130	
Lead	ug/L	<4.6	1000	1010	100	70-130	
Lithium	ug/L	10.7	1000	997	99	70-130	
Magnesium	ug/L	19500	10000	28700	92	70-130	
Manganese	ug/L	235	1000	1220	98	70-130	
Molybdenum	ug/L	<1.7	1000	994	99	70-130	
Potassium	ug/L	1920	10000	11500	96	70-130	
Sodium	ug/L	19400	10000	28800	95	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648922
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2634041
Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	04/16/20 11:25	
Arsenic	ug/L	<0.086	1.0	0.086	04/16/20 11:25	
Cadmium	ug/L	<0.056	0.50	0.056	04/16/20 11:25	
Chromium	ug/L	<0.22	1.0	0.22	04/16/20 11:25	
Selenium	ug/L	<0.18	1.0	0.18	04/16/20 11:25	
Thallium	ug/L	<0.093	1.0	0.093	04/16/20 11:25	

LABORATORY CONTROL SAMPLE: 2634042

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	39.7	99	85-115	
Cadmium	ug/L	40	38.8	97	85-115	
Chromium	ug/L	40	38.4	96	85-115	
Selenium	ug/L	40	39.2	98	85-115	
Thallium	ug/L	40	35.4	88	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2634043 2634044

Parameter	Units	60333704002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.097	40	40	39.0	39.5	97	99	70-130	1	20	
Arsenic	ug/L	38.5	40	40	77.7	78.9	98	101	70-130	2	20	
Cadmium	ug/L	<0.056	40	40	37.2	37.6	93	94	70-130	1	20	
Chromium	ug/L	0.22J	40	40	38.6	39.7	96	99	70-130	3	20	
Selenium	ug/L	0.37J	40	40	36.9	37.7	91	93	70-130	2	20	
Thallium	ug/L	<0.093	40	40	34.9	36.0	87	90	70-130	3	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648923
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

METHOD BLANK: 2634045
Matrix: Water
Associated Lab Samples: 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	04/16/20 11:55	
Arsenic	ug/L	<0.086	1.0	0.086	04/16/20 11:55	
Cadmium	ug/L	<0.056	0.50	0.056	04/16/20 11:55	
Chromium	ug/L	<0.22	1.0	0.22	04/16/20 11:55	
Selenium	ug/L	<0.18	1.0	0.18	04/16/20 11:55	
Thallium	ug/L	<0.093	1.0	0.093	04/16/20 11:55	

LABORATORY CONTROL SAMPLE: 2634046

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.0	95	85-115	
Arsenic	ug/L	40	39.2	98	85-115	
Cadmium	ug/L	40	38.6	96	85-115	
Chromium	ug/L	40	38.2	96	85-115	
Selenium	ug/L	40	39.4	98	85-115	
Thallium	ug/L	40	36.2	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2634047 2634048

Parameter	Units	60333704003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.59J	40	40	38.9	39.1	96	96	70-130	1	20	
Arsenic	ug/L	71.3	40	40	109	108	94	93	70-130	1	20	
Cadmium	ug/L	0.71	40	40	37.6	37.9	92	93	70-130	1	20	
Chromium	ug/L	1.1	40	40	37.3	37.5	91	91	70-130	0	20	
Selenium	ug/L	2.2	40	40	25.8	27.4	59	63	70-130	6	20	M1
Thallium	ug/L	<0.093	40	40	34.7	34.5	87	86	70-130	1	20	

MATRIX SPIKE SAMPLE: 2634049

Parameter	Units	60333704013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.097	40	38.7	97	70-130	
Arsenic	ug/L	15.7	40	55.2	99	70-130	
Cadmium	ug/L	<0.056	40	38.2	95	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

MATRIX SPIKE SAMPLE: 2634049

Parameter	Units	60333704013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	<0.22	40	37.6	94	70-130	
Selenium	ug/L	<0.18	40	38.4	96	70-130	
Thallium	ug/L	<0.093	40	35.9	90	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649746
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704014

METHOD BLANK: 2636715
Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/16/20 17:56	

LABORATORY CONTROL SAMPLE: 2636716

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	483	97	90-110	

SAMPLE DUPLICATE: 2636717

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	268	277	3	10	

SAMPLE DUPLICATE: 2636718

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	424	446	5	10	

SAMPLE DUPLICATE: 2636719

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	230	236	3	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649934
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013

METHOD BLANK: 2637473 Matrix: Water
Associated Lab Samples: 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/17/20 14:01	

LABORATORY CONTROL SAMPLE: 2637474

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	472	94	90-110	

SAMPLE DUPLICATE: 2637475

Parameter	Units	60333704007 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	228	224	2	10	

SAMPLE DUPLICATE: 2637476

Parameter	Units	60333762004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	218	221	2	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649955
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704020, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2637520 Matrix: Water
Associated Lab Samples: 60333704020, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/17/20 17:07	

LABORATORY CONTROL SAMPLE: 2637521

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

SAMPLE DUPLICATE: 2637522

Parameter	Units	60333764001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	234	237	1	10	

SAMPLE DUPLICATE: 2637523

Parameter	Units	60333944003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	372	393	6	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 650115
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704021

METHOD BLANK: 2638264
Matrix: Water
Associated Lab Samples: 60333704019, 60333704021

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	04/20/20 10:49	

LABORATORY CONTROL SAMPLE: 2638265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	470	94	90-110	

SAMPLE DUPLICATE: 2638266

Parameter	Units	60333703011 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	310	322	4	10	

SAMPLE DUPLICATE: 2638267

Parameter	Units	60334170002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	162	160	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648753 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704014

METHOD BLANK: 2633341 | Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/10/20 15:50	

LABORATORY CONTROL SAMPLE: 2633342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	941	94	80-120	

SAMPLE DUPLICATE: 2633343

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	673	707	5	10	

SAMPLE DUPLICATE: 2633344

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	830	865	4	10	

SAMPLE DUPLICATE: 2633345

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	732	771	5	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648956
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013

METHOD BLANK: 2634126 Matrix: Water
Associated Lab Samples: 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/13/20 13:59	

LABORATORY CONTROL SAMPLE: 2634127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	940	94	80-120	

SAMPLE DUPLICATE: 2634128

Parameter	Units	60333955004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	450	437	3	10	

SAMPLE DUPLICATE: 2634137

Parameter	Units	60333762003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	664	702	6	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649165
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2634654
Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/14/20 15:26	

LABORATORY CONTROL SAMPLE: 2634655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	984	98	80-120	

SAMPLE DUPLICATE: 2634656

Parameter	Units	60333955001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	339	314	7	10	

SAMPLE DUPLICATE: 2634657

Parameter	Units	60333850002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	813	850	4	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648172 | Analysis Method: SM 3500-Fe B#4
QC Batch Method: SM 3500-Fe B#4 | Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

METHOD BLANK: 2631000 | Matrix: Water

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.035	0.20	0.035	04/08/20 15:04	H6

LABORATORY CONTROL SAMPLE: 2631001

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	2	2.2	110	90-110	H6

SAMPLE DUPLICATE: 2631002

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	<0.035	<0.035		20	H6

SAMPLE DUPLICATE: 2631003

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	0.56	0.57	2	20	H6

SAMPLE DUPLICATE: 2631004

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	0.15J	0.15J		20	H6

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649003
QC Batch Method: SM 3500-Fe B#4
Analysis Method: SM 3500-Fe B#4
Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2634192
Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.035	0.20	0.035	04/15/20 09:09	H6

LABORATORY CONTROL SAMPLE: 2634193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	2	2.1	106	90-110	H6

SAMPLE DUPLICATE: 2634194

Parameter	Units	60333704026 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	<0.035	<0.035		20	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648622
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704014

METHOD BLANK: 2632857
Matrix: Water
Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/10/20 08:55	

LABORATORY CONTROL SAMPLE: 2632858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.46	93	80-120	

MATRIX SPIKE SAMPLE: 2632859

Parameter	Units	60333703001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.41	82	75-125	

MATRIX SPIKE SAMPLE: 2632861

Parameter	Units	60333704002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.30	59	75-125	M1

MATRIX SPIKE SAMPLE: 2632863

Parameter	Units	60333704003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	1.5	1	2.2	66	75-125	E,M1

SAMPLE DUPLICATE: 2632860

Parameter	Units	60333703001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

SAMPLE DUPLICATE: 2632862

Parameter	Units	60333704002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

SAMPLE DUPLICATE: 2632864

Parameter	Units	60333704003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	1.5	1.5	1	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649213
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704012, 60333704013

METHOD BLANK: 2634820
Matrix: Water
Associated Lab Samples: 60333704012, 60333704013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/14/20 14:55	

LABORATORY CONTROL SAMPLE: 2634821

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.46	92	80-120	

MATRIX SPIKE SAMPLE: 2634822

Parameter	Units	60333704012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.039	0.5	0.48	95	75-125	

SAMPLE DUPLICATE: 2634823

Parameter	Units	60333859001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.039		20	

SAMPLE DUPLICATE: 2634824

Parameter	Units	60333859009 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649342
QC Batch Method: SM 4500-S-2 D
Analysis Method: SM 4500-S-2 D
Analysis Description: 4500S2D Sulfide, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2635206
Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.039	0.050	0.039	04/15/20 11:10	

LABORATORY CONTROL SAMPLE: 2635207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.54	108	80-120	

MATRIX SPIKE SAMPLE: 2635208

Parameter	Units	60334330002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.32	0.5	0.84	104	75-125	

SAMPLE DUPLICATE: 2635209

Parameter	Units	60333914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.065	0.069	6	20	

SAMPLE DUPLICATE: 2635210

Parameter	Units	60333703007 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.039	<0.039		20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 648911 | 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: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

METHOD BLANK: 2633985 | Matrix: Water

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/13/20 09:17	
Fluoride	mg/L	<0.075	0.20	0.075	04/13/20 09:17	
Sulfate	mg/L	<0.28	1.0	0.28	04/13/20 09:17	

METHOD BLANK: 2634387 | Matrix: Water

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/14/20 08:56	
Fluoride	mg/L	<0.075	0.20	0.075	04/14/20 08:56	
Sulfate	mg/L	<0.28	1.0	0.28	04/14/20 08:56	

LABORATORY CONTROL SAMPLE: 2633986

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	5.1	103	90-110	

LABORATORY CONTROL SAMPLE: 2634388

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	5.3	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633987 2633988

Parameter	Units	60333704002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	37.0	10	10	46.9	46.8	99	98	80-120	0	15	E,R1
Fluoride	mg/L	0.59	2.5	2.5	3.3	2.8	110	88	80-120	18	15	R1

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633987 2633988

Parameter	Units	60333704002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	218	100	100	321	318	104	100	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2633989 2633990

Parameter	Units	60333704003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	22.9	10	10	34.5	34.3	117	114	80-120	1	15	
Fluoride	mg/L	2.0	2.5	2.5	4.4	4.4	94	95	80-120	1	15	
Sulfate	mg/L	251	100	100	424	349	173	98	80-120	19	15	E,M1, R1

MATRIX SPIKE SAMPLE: 2633991

Parameter	Units	60333704008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	36.3	10	48.2	119	80-120	E
Fluoride	mg/L	0.31	2.5	2.7	96	80-120	
Sulfate	mg/L	39.7	25	66.4	107	80-120	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 649602
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 2636204 Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/16/20 12:38	
Fluoride	mg/L	<0.075	0.20	0.075	04/16/20 12:38	
Sulfate	mg/L	<0.28	1.0	0.28	04/16/20 12:38	

METHOD BLANK: 2636234 Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/14/20 09:07	
Fluoride	mg/L	<0.075	0.20	0.075	04/14/20 09:07	
Sulfate	mg/L	<0.28	1.0	0.28	04/14/20 09:07	

METHOD BLANK: 2637250 Matrix: Water
Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	04/17/20 08:41	
Fluoride	mg/L	<0.075	0.20	0.075	04/17/20 08:41	
Sulfate	mg/L	<0.28	1.0	0.28	04/17/20 08:41	

LABORATORY CONTROL SAMPLE: 2636205

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	2.3	92	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 2636235

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

LABORATORY CONTROL SAMPLE: 2636235

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

LABORATORY CONTROL SAMPLE: 2637251

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	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2636206 2636207

Parameter	Units	60333949003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4850	100	100	4970	4970	120	120	80-120	0	15	E
Fluoride	mg/L	ND	50	50	52.1	54.6	102	107	80-120	5	15	
Sulfate	mg/L	165	100	100	275	287	110	122	80-120	4	15	M1

MATRIX SPIKE SAMPLE: 2636208

Parameter	Units	60334213001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	29.1	50	104	149	80-120	M1
Fluoride	mg/L	0.30	2.5	2.3	80	80-120	
Sulfate	mg/L	1.2	125	399	319	80-120	M1

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-1 **Lab ID: 60333704001** Collected: 04/07/20 10:15 Received: 04/08/20 03:40 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	**0.0592 ± 0.307 (0.637) C:NA T:91%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.466 ± 0.409 (0.829) C:83% T:83%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17S **Lab ID: 60333704002** Collected: 04/06/20 13:33 Received: 04/08/20 03:40 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	**0.237 ± 0.310 (0.511)** **C:NA T:84%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.585 ± 0.476 (0.951)** **C:79% T:82%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17I **Lab ID: 60333704003** Collected: 04/06/20 11:28 Received: 04/08/20 03:40 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	**0.116 ± 0.394 (0.759)** **C:NA T:70%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.861 ± 0.792 (1.61)** **C:64% T:55%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P17D **Lab ID: 60333704004** Collected: 04/06/20 13:04 Received: 04/08/20 03:40 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	**-0.132 ± 0.548 (1.15) C:NA T:78%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.958 ± 0.525 (0.955) C:78% T:81%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19S **Lab ID: 60333704005** Collected: 04/07/20 09:25 Received: 04/08/20 03:40 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	**0.729 ± 0.405 (0.152)** **C:NA T:88%**	pCi/L	04/28/20 13:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.17 ± 0.503 (0.812)** **C:82% T:79%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P-19I **Lab ID: 60333704006** Collected: 04/07/20 09:57 Received: 04/08/20 03:40 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	**-0.0681 ± 0.311 (0.632) C:NA T:79%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.200 ± 0.528 (1.18) C:60% T:71%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P19D **Lab ID: 60333704007** Collected: 04/07/20 10:32 Received: 04/08/20 03:40 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 ± 0.261 (0.585)** **C:NA T:90%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.803 ± 0.555 (1.08)** **C:70% T:81%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21S **Lab ID: 60333704008** Collected: 04/07/20 12:09 Received: 04/08/20 03:40 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	**0.196 ± 0.384 (0.702)** **C:NA T:77%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.596 ± 0.426 (0.828)** **C:77% T:89%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21I **Lab ID: 60333704009** Collected: 04/07/20 12:50 Received: 04/08/20 03:40 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	**0.180 ± 0.311 (0.556)** **C:NA T:82%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.811 ± 0.718 (1.47)** **C:71% T:63%**	pCi/L	04/25/20 17:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P21D **Lab ID: 60333704010** Collected: 04/07/20 13:30 Received: 04/08/20 03:40 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	**1.03 ± 0.652 (0.856) C:NA T:79%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**2.55 ± 0.743 (0.913) C:79% T:83%**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29D **Lab ID: 60333704011** Collected: 04/07/20 12:15 Received: 04/08/20 03:40 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	**0.217 ± 0.338 (0.585)** **C:NA T:91%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.416 ± 0.456 (0.959)** **C:79% T:89%**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P30S **Lab ID: 60333704012** Collected: 04/07/20 09:20 Received: 04/08/20 03:40 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	**0.0672 ± 0.349 (0.723)** **C:NA T:72%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.932 ± 0.530 (0.986)** **C:74% T:88%**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P31S **Lab ID: 60333704013** Collected: 04/07/20 10:40 Received: 04/08/20 03:40 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	**0.443 ± 0.488 (0.781) C:NA T:90%**	pCi/L	04/28/20 13:55	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.457 ± 0.390 (0.778) C:79% T:79%**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-1 **Lab ID: 60333704014** Collected: 04/06/20 08:00 Received: 04/08/20 03:40 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	**0.171 ± 0.403 (0.746)** **C:NA T:82%**	pCi/L	04/28/20 14:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.803 ± 0.421 (0.738)** **C:77% T:87%**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-MS-2-P17S **Lab ID: 60333704015** Collected: 04/06/20 13:33 Received: 04/08/20 03:40 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	**102 %REC +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 14:48	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**109.75 %REC ± NA (NA) C:NA T:NA**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-MSD-2-P17S **Lab ID: 60333704016** Collected: 04/06/20 13:33 Received: 04/08/20 03:40 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	**123 %REC 19.0 RPD +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 14:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**86.99 %REC 23.13 RPD ± NA (NA) C:NA T:NA**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-MS-1-P17I **Lab ID: 60333704017** Collected: 04/06/20 11:25 Received: 04/08/20 03:40 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	**102 %REC +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 14:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**87.94 %REC ± NA (NA) C:NA T:NA**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-MSD-1-P17I **Lab ID: 60333704018** Collected: 04/06/20 11:25 Received: 04/08/20 03:40 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	**104 %REC 2.12 RPD +/- NA (NA) C:NA T:NA**	pCi/L	04/28/20 14:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**83.15 %REC 5.60 RPD ± NA (NA) C:NA T:NA**	pCi/L	04/25/20 17:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P05S **Lab ID: 60333704019** Collected: 04/09/20 14:15 Received: 04/10/20 02:30 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	**0.502 ± 0.367 (0.410)** **C:NA T:94%**	pCi/L	04/30/20 12:30	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.775 ± 0.402 (0.715)** **C:77% T:88%**	pCi/L	04/28/20 11:07	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P10S **Lab ID: 60333704020** Collected: 04/08/20 15:30 Received: 04/10/20 02:30 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	**0.795 ± 0.485 (0.570)** **C:NA T:91%**	pCi/L	04/30/20 12:30	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.271 ± 0.363 (0.776)** **C:78% T:80%**	pCi/L	04/28/20 11:07	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P16S **Lab ID: 60333704021** Collected: 04/09/20 14:46 Received: 04/10/20 02:30 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	**0.162 ± 0.280 (0.501)** **C:NA T:91%**	pCi/L	04/30/20 12:30	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.428 ± 0.387 (0.793)** **C:78% T:87%**	pCi/L	04/28/20 11:07	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-FB-2 **Lab ID: 60333704022** Collected: 04/08/20 16:05 Received: 04/10/20 02:30 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 ± 0.586 (0.608)** **C:NA T:76%**	pCi/L	04/30/20 12:30	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.370 ± 0.489 (1.05)** **C:76% T:77%**	pCi/L	04/28/20 11:04	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22S **Lab ID: 60333704023** Collected: 04/08/20 10:55 Received: 04/10/20 02:30 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	**0.269 ± 0.435 (0.757) C:NA T:98%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.360 ± 0.318 (0.640) C:74% T:89%**	pCi/L	04/28/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P22D **Lab ID: 60333704024** Collected: 04/08/20 10:00 Received: 04/10/20 02:30 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	**0.356 ± 0.413 (0.666)** **C:NA T:95%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.643 ± 0.552 (1.11)** **C:70% T:66%**	pCi/L	04/28/20 14:24	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-P29S **Lab ID: 60333704025** Collected: 04/08/20 10:58 Received: 04/10/20 02:30 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	**0.386 ± 0.361 (0.512)** **C:NA T:94%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.208 ± 0.364 (0.794)** **C:77% T:88%**	pCi/L	04/28/20 14:24	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Sample: R-CA-DUP-2 **Lab ID: 60333704026** Collected: 04/08/20 08:00 Received: 04/10/20 02:30 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	**0.431 ± 0.403 (0.571)** **C:NA T:80%**	pCi/L	04/30/20 12:54	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.106 ± 0.399 (0.902)** **C:77% T:83%**	pCi/L	04/28/20 14:24	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 391981 | 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: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014, 60333704015, 60333704016, 60333704017, 60333704018

METHOD BLANK: 1897890 | Matrix: Water

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014, 60333704015, 60333704016, 60333704017, 60333704018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0925 ± 0.385 (0.734) C:NA T:83%	pCi/L	04/28/20 13:34	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 392084 | 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: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 1898507 | Matrix: Water

Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0998 ± 0.366 (0.704) C:NA T:84%	pCi/L	04/30/20 12:30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 391982 | 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: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014, 60333704015, 60333704016, 60333704017, 60333704018

METHOD BLANK: 1897893 | Matrix: Water

Associated Lab Samples: 60333704001, 60333704002, 60333704003, 60333704004, 60333704005, 60333704006, 60333704007, 60333704008, 60333704009, 60333704010, 60333704011, 60333704012, 60333704013, 60333704014, 60333704015, 60333704016, 60333704017, 60333704018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.414 (0.864) C:72% T:89%	pCi/L	04/25/20 17:35	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

QC Batch: 392087 | 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: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

METHOD BLANK: 1898522 | Matrix: Water

Associated Lab Samples: 60333704019, 60333704020, 60333704021, 60333704022, 60333704023, 60333704024, 60333704025, 60333704026

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.704 ± 0.393 (0.716) C:80% T:82%	pCi/L	04/28/20 11:07	

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QUALIFIERS

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

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.

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

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704001	**R-CA-FB-1**	EPA 200.7	650014	EPA 200.7	650020
60333704002	**R-P17S**	EPA 200.7	650014	EPA 200.7	650020
60333704003	**R-P17I**	EPA 200.7	650014	EPA 200.7	650020
60333704004	**R-P17D**	EPA 200.7	650014	EPA 200.7	650020
60333704005	**R-P19S**	EPA 200.7	650014	EPA 200.7	650020
60333704006	**R-P-19I**	EPA 200.7	650014	EPA 200.7	650020
60333704007	**R-P19D**	EPA 200.7	650014	EPA 200.7	650020
60333704008	**R-P21S**	EPA 200.7	650014	EPA 200.7	650020
60333704009	**R-P21I**	EPA 200.7	650014	EPA 200.7	650020
60333704010	**R-P21D**	EPA 200.7	650014	EPA 200.7	650020
60333704011	**R-P29D**	EPA 200.7	650014	EPA 200.7	650020
60333704012	**R-P30S**	EPA 200.7	650014	EPA 200.7	650020
60333704013	**R-P31S**	EPA 200.7	650014	EPA 200.7	650020
60333704014	**R-CA-DUP-1**	EPA 200.7	650014	EPA 200.7	650020
60333704019	**R-P05S**	EPA 200.7	650394	EPA 200.7	650454
60333704020	**R-P10S**	EPA 200.7	650394	EPA 200.7	650454
60333704021	**R-P16S**	EPA 200.7	650394	EPA 200.7	650454
60333704022	**R-CA-FB-2**	EPA 200.7	650394	EPA 200.7	650454
60333704023	**R-P22S**	EPA 200.7	650394	EPA 200.7	650454
60333704024	**R-P22D**	EPA 200.7	650394	EPA 200.7	650454
60333704025	**R-P29S**	EPA 200.7	650394	EPA 200.7	650454
60333704026	**R-CA-DUP-2**	EPA 200.7	650394	EPA 200.7	650454
60333704001	**R-CA-FB-1**	EPA 200.8	648922	EPA 200.8	649087
60333704002	**R-P17S**	EPA 200.8	648922	EPA 200.8	649087
60333704003	**R-P17I**	EPA 200.8	648923	EPA 200.8	649088
60333704004	**R-P17D**	EPA 200.8	648923	EPA 200.8	649088
60333704005	**R-P19S**	EPA 200.8	648923	EPA 200.8	649088
60333704006	**R-P-19I**	EPA 200.8	648923	EPA 200.8	649088
60333704007	**R-P19D**	EPA 200.8	648923	EPA 200.8	649088
60333704008	**R-P21S**	EPA 200.8	648923	EPA 200.8	649088
60333704009	**R-P21I**	EPA 200.8	648923	EPA 200.8	649088
60333704010	**R-P21D**	EPA 200.8	648923	EPA 200.8	649088
60333704011	**R-P29D**	EPA 200.8	648923	EPA 200.8	649088
60333704012	**R-P30S**	EPA 200.8	648923	EPA 200.8	649088
60333704013	**R-P31S**	EPA 200.8	648923	EPA 200.8	649088
60333704014	**R-CA-DUP-1**	EPA 200.8	648923	EPA 200.8	649088
60333704019	**R-P05S**	EPA 200.8	648922	EPA 200.8	649087
60333704020	**R-P10S**	EPA 200.8	648922	EPA 200.8	649087
60333704021	**R-P16S**	EPA 200.8	648922	EPA 200.8	649087
60333704022	**R-CA-FB-2**	EPA 200.8	648922	EPA 200.8	649087
60333704023	**R-P22S**	EPA 200.8	648922	EPA 200.8	649087
60333704024	**R-P22D**	EPA 200.8	648922	EPA 200.8	649087
60333704025	**R-P29S**	EPA 200.8	648922	EPA 200.8	649087
60333704026	**R-CA-DUP-2**	EPA 200.8	648922	EPA 200.8	649087
60333704001	**R-CA-FB-1**	EPA 7470	650288	EPA 7470	650300
60333704002	**R-P17S**	EPA 7470	650288	EPA 7470	650300

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704003	**R-P17I**	EPA 7470	650288	EPA 7470	650300
60333704004	**R-P17D**	EPA 7470	650288	EPA 7470	650300
60333704005	**R-P19S**	EPA 7470	650288	EPA 7470	650300
60333704006	**R-P-19I**	EPA 7470	650288	EPA 7470	650300
60333704007	**R-P19D**	EPA 7470	650288	EPA 7470	650300
60333704008	**R-P21S**	EPA 7470	650288	EPA 7470	650300
60333704009	**R-P21I**	EPA 7470	650288	EPA 7470	650300
60333704010	**R-P21D**	EPA 7470	650288	EPA 7470	650300
60333704011	**R-P29D**	EPA 7470	650288	EPA 7470	650300
60333704012	**R-P30S**	EPA 7470	650288	EPA 7470	650300
60333704013	**R-P31S**	EPA 7470	650288	EPA 7470	650300
60333704014	**R-CA-DUP-1**	EPA 7470	650288	EPA 7470	650300
60333704019	**R-P05S**	EPA 7470	652142	EPA 7470	652280
60333704020	**R-P10S**	EPA 7470	652142	EPA 7470	652280
60333704021	**R-P16S**	EPA 7470	652142	EPA 7470	652280
60333704022	**R-CA-FB-2**	EPA 7470	652142	EPA 7470	652280
60333704023	**R-P22S**	EPA 7470	652142	EPA 7470	652280
60333704024	**R-P22D**	EPA 7470	652142	EPA 7470	652280
60333704025	**R-P29S**	EPA 7470	652142	EPA 7470	652280
60333704026	**R-CA-DUP-2**	EPA 7470	652142	EPA 7470	652280
60333704001	**R-CA-FB-1**	EPA 903.1	391981		
60333704002	**R-P17S**	EPA 903.1	391981		
60333704003	**R-P17I**	EPA 903.1	391981		
60333704004	**R-P17D**	EPA 903.1	391981		
60333704005	**R-P19S**	EPA 903.1	391981		
60333704006	**R-P-19I**	EPA 903.1	391981		
60333704007	**R-P19D**	EPA 903.1	391981		
60333704008	**R-P21S**	EPA 903.1	391981		
60333704009	**R-P21I**	EPA 903.1	391981		
60333704010	**R-P21D**	EPA 903.1	391981		
60333704011	**R-P29D**	EPA 903.1	391981		
60333704012	**R-P30S**	EPA 903.1	391981		
60333704013	**R-P31S**	EPA 903.1	391981		
60333704014	**R-CA-DUP-1**	EPA 903.1	391981		
60333704015	**R-CA-MS-2-P17S**	EPA 903.1	391981		
60333704016	**R-CA-MSD-2-P17S**	EPA 903.1	391981		
60333704017	**R-CA-MS-1-P17I**	EPA 903.1	391981		
60333704018	**R-CA-MSD-1-P17I**	EPA 903.1	391981		
60333704019	**R-P05S**	EPA 903.1	392084		
60333704020	**R-P10S**	EPA 903.1	392084		
60333704021	**R-P16S**	EPA 903.1	392084		
60333704022	**R-CA-FB-2**	EPA 903.1	392084		
60333704023	**R-P22S**	EPA 903.1	392084		
60333704024	**R-P22D**	EPA 903.1	392084		
60333704025	**R-P29S**	EPA 903.1	392084		
60333704026	**R-CA-DUP-2**	EPA 903.1	392084		
60333704001	**R-CA-FB-1**	EPA 904.0	391982		

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704002	**R-P17S**	EPA 904.0	391982		
60333704003	**R-P17I**	EPA 904.0	391982		
60333704004	**R-P17D**	EPA 904.0	391982		
60333704005	**R-P19S**	EPA 904.0	391982		
60333704006	**R-P-19I**	EPA 904.0	391982		
60333704007	**R-P19D**	EPA 904.0	391982		
60333704008	**R-P21S**	EPA 904.0	391982		
60333704009	**R-P21I**	EPA 904.0	391982		
60333704010	**R-P21D**	EPA 904.0	391982		
60333704011	**R-P29D**	EPA 904.0	391982		
60333704012	**R-P30S**	EPA 904.0	391982		
60333704013	**R-P31S**	EPA 904.0	391982		
60333704014	**R-CA-DUP-1**	EPA 904.0	391982		
60333704015	**R-CA-MS-2-P17S**	EPA 904.0	391982		
60333704016	**R-CA-MSD-2-P17S**	EPA 904.0	391982		
60333704017	**R-CA-MS-1-P17I**	EPA 904.0	391982		
60333704018	**R-CA-MSD-1-P17I**	EPA 904.0	391982		
60333704019	**R-P05S**	EPA 904.0	392087		
60333704020	**R-P10S**	EPA 904.0	392087		
60333704021	**R-P16S**	EPA 904.0	392087		
60333704022	**R-CA-FB-2**	EPA 904.0	392087		
60333704023	**R-P22S**	EPA 904.0	392087		
60333704024	**R-P22D**	EPA 904.0	392087		
60333704025	**R-P29S**	EPA 904.0	392087		
60333704026	**R-CA-DUP-2**	EPA 904.0	392087		
60333704001	**R-CA-FB-1**	SM 2320B	649746		
60333704002	**R-P17S**	SM 2320B	649746		
60333704003	**R-P17I**	SM 2320B	649746		
60333704004	**R-P17D**	SM 2320B	649746		
60333704005	**R-P19S**	SM 2320B	649746		
60333704006	**R-P-19I**	SM 2320B	649746		
60333704007	**R-P19D**	SM 2320B	649934		
60333704008	**R-P21S**	SM 2320B	649934		
60333704009	**R-P21I**	SM 2320B	649934		
60333704010	**R-P21D**	SM 2320B	649934		
60333704011	**R-P29D**	SM 2320B	649934		
60333704012	**R-P30S**	SM 2320B	649934		
60333704013	**R-P31S**	SM 2320B	649934		
60333704014	**R-CA-DUP-1**	SM 2320B	649746		
60333704019	**R-P05S**	SM 2320B	650115		
60333704020	**R-P10S**	SM 2320B	649955		
60333704021	**R-P16S**	SM 2320B	650115		
60333704022	**R-CA-FB-2**	SM 2320B	649955		
60333704023	**R-P22S**	SM 2320B	649955		
60333704024	**R-P22D**	SM 2320B	649955		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704025	**R-P29S**	SM 2320B	649955		
60333704026	**R-CA-DUP-2**	SM 2320B	649955		
60333704001	**R-CA-FB-1**	SM 2540C	648753		
60333704002	**R-P17S**	SM 2540C	648753		
60333704003	**R-P17I**	SM 2540C	648753		
60333704004	**R-P17D**	SM 2540C	648753		
60333704005	**R-P19S**	SM 2540C	648753		
60333704006	**R-P-19I**	SM 2540C	648753		
60333704007	**R-P19D**	SM 2540C	648956		
60333704008	**R-P21S**	SM 2540C	648956		
60333704009	**R-P21I**	SM 2540C	648956		
60333704010	**R-P21D**	SM 2540C	648956		
60333704011	**R-P29D**	SM 2540C	648956		
60333704012	**R-P30S**	SM 2540C	648956		
60333704013	**R-P31S**	SM 2540C	648956		
60333704014	**R-CA-DUP-1**	SM 2540C	648753		
60333704019	**R-P05S**	SM 2540C	649165		
60333704020	**R-P10S**	SM 2540C	649165		
60333704021	**R-P16S**	SM 2540C	649165		
60333704022	**R-CA-FB-2**	SM 2540C	649165		
60333704023	**R-P22S**	SM 2540C	649165		
60333704024	**R-P22D**	SM 2540C	649165		
60333704025	**R-P29S**	SM 2540C	649165		
60333704026	**R-CA-DUP-2**	SM 2540C	649165		
60333704001	**R-CA-FB-1**	SM 3500-Fe B#4	650444		
60333704002	**R-P17S**	SM 3500-Fe B#4	650444		
60333704003	**R-P17I**	SM 3500-Fe B#4	650444		
60333704004	**R-P17D**	SM 3500-Fe B#4	650444		
60333704005	**R-P19S**	SM 3500-Fe B#4	650444		
60333704006	**R-P-19I**	SM 3500-Fe B#4	650444		
60333704007	**R-P19D**	SM 3500-Fe B#4	650444		
60333704008	**R-P21S**	SM 3500-Fe B#4	650444		
60333704009	**R-P21I**	SM 3500-Fe B#4	650444		
60333704010	**R-P21D**	SM 3500-Fe B#4	650444		
60333704011	**R-P29D**	SM 3500-Fe B#4	650444		
60333704012	**R-P30S**	SM 3500-Fe B#4	650444		
60333704013	**R-P31S**	SM 3500-Fe B#4	650444		
60333704014	**R-CA-DUP-1**	SM 3500-Fe B#4	650444		
60333704019	**R-P05S**	SM 3500-Fe B#4	651492		
60333704020	**R-P10S**	SM 3500-Fe B#4	651492		
60333704021	**R-P16S**	SM 3500-Fe B#4	651492		
60333704022	**R-CA-FB-2**	SM 3500-Fe B#4	651492		
60333704023	**R-P22S**	SM 3500-Fe B#4	651492		
60333704024	**R-P22D**	SM 3500-Fe B#4	651492		
60333704025	**R-P29S**	SM 3500-Fe B#4	652021		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704026	**R-CA-DUP-2**	SM 3500-Fe B#4	652021		
60333704001	**R-CA-FB-1**	SM 3500-Fe B#4	648172		
60333704002	**R-P17S**	SM 3500-Fe B#4	648172		
60333704003	**R-P17I**	SM 3500-Fe B#4	648172		
60333704004	**R-P17D**	SM 3500-Fe B#4	648172		
60333704005	**R-P19S**	SM 3500-Fe B#4	648172		
60333704006	**R-P-19I**	SM 3500-Fe B#4	648172		
60333704007	**R-P19D**	SM 3500-Fe B#4	648172		
60333704008	**R-P21S**	SM 3500-Fe B#4	648172		
60333704009	**R-P21I**	SM 3500-Fe B#4	648172		
60333704010	**R-P21D**	SM 3500-Fe B#4	648172		
60333704011	**R-P29D**	SM 3500-Fe B#4	648172		
60333704012	**R-P30S**	SM 3500-Fe B#4	648172		
60333704013	**R-P31S**	SM 3500-Fe B#4	648172		
60333704014	**R-CA-DUP-1**	SM 3500-Fe B#4	648172		
60333704019	**R-P05S**	SM 3500-Fe B#4	649003		
60333704020	**R-P10S**	SM 3500-Fe B#4	649003		
60333704021	**R-P16S**	SM 3500-Fe B#4	649003		
60333704022	**R-CA-FB-2**	SM 3500-Fe B#4	649003		
60333704023	**R-P22S**	SM 3500-Fe B#4	649003		
60333704024	**R-P22D**	SM 3500-Fe B#4	649003		
60333704025	**R-P29S**	SM 3500-Fe B#4	649003		
60333704026	**R-CA-DUP-2**	SM 3500-Fe B#4	649003		
60333704001	**R-CA-FB-1**	SM 4500-S-2 D	648622		
60333704002	**R-P17S**	SM 4500-S-2 D	648622		
60333704003	**R-P17I**	SM 4500-S-2 D	648622		
60333704004	**R-P17D**	SM 4500-S-2 D	648622		
60333704005	**R-P19S**	SM 4500-S-2 D	648622		
60333704006	**R-P-19I**	SM 4500-S-2 D	648622		
60333704007	**R-P19D**	SM 4500-S-2 D	648622		
60333704008	**R-P21S**	SM 4500-S-2 D	648622		
60333704009	**R-P21I**	SM 4500-S-2 D	648622		
60333704010	**R-P21D**	SM 4500-S-2 D	648622		
60333704011	**R-P29D**	SM 4500-S-2 D	648622		
60333704012	**R-P30S**	SM 4500-S-2 D	649213		
60333704013	**R-P31S**	SM 4500-S-2 D	649213		
60333704014	**R-CA-DUP-1**	SM 4500-S-2 D	648622		
60333704019	**R-P05S**	SM 4500-S-2 D	649342		
60333704020	**R-P10S**	SM 4500-S-2 D	649342		
60333704021	**R-P16S**	SM 4500-S-2 D	649342		
60333704022	**R-CA-FB-2**	SM 4500-S-2 D	649342		
60333704023	**R-P22S**	SM 4500-S-2 D	649342		
60333704024	**R-P22D**	SM 4500-S-2 D	649342		
60333704025	**R-P29S**	SM 4500-S-2 D	649342		
60333704026	**R-CA-DUP-2**	SM 4500-S-2 D	649342		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND RCPA-CA
Pace Project No.: 60333704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60333704001	**R-CA-FB-1**	EPA 300.0	648911		
60333704002	**R-P17S**	EPA 300.0	648911		
60333704003	**R-P17I**	EPA 300.0	648911		
60333704004	**R-P17D**	EPA 300.0	648911		
60333704005	**R-P19S**	EPA 300.0	648911		
60333704006	**R-P-19I**	EPA 300.0	648911		
60333704007	**R-P19D**	EPA 300.0	648911		
60333704008	**R-P21S**	EPA 300.0	648911		
60333704009	**R-P21I**	EPA 300.0	648911		
60333704010	**R-P21D**	EPA 300.0	648911		
60333704011	**R-P29D**	EPA 300.0	648911		
60333704012	**R-P30S**	EPA 300.0	648911		
60333704013	**R-P31S**	EPA 300.0	648911		
60333704014	**R-CA-DUP-1**	EPA 300.0	648911		
60333704019	**R-P05S**	EPA 300.0	649602		
60333704020	**R-P10S**	EPA 300.0	649602		
60333704021	**R-P16S**	EPA 300.0	649602		
60333704022	**R-CA-FB-2**	EPA 300.0	649602		
60333704023	**R-P22S**	EPA 300.0	649602		
60333704024	**R-P22D**	EPA 300.0	649602		
60333704025	**R-P29S**	EPA 300.0	649602		
60333704026	**R-CA-DUP-2**	EPA 300.0	649602		

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Sample Condition Upon Receipt

WO# : 60333704

60333704

Client Name: Golder Assoc.

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

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

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

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

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

Cooler Temperature (°C): As-read 1.0, 0.6, 0.4, 0.8, 17.6, 15.7 Corr. Factor +0.1 Corrected 1.1, 0.7, 0.5, 0.9, 17.7, 15.8

Date and initials of person examining contents: 4/8/20 D

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	FE2+
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	R-P195 collected 4/7/20 @ 0925
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	client label reads R-P175 collected
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot #	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added. 4/7/20 @ 0925. Logged in for R-P195, sample 005
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution _____

Project Manager Review: _____ Date _____

Pace Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	R-GA-FB-1 ~~R-P05S~~ (ES)	WT	G			4/7/20	1015		6	2		3					1		X	X	X	X	X	X	X	X	X	X		
2	R-P10S	WT	G																											
3	~~R-P16S~~ (ES)	WT	G																											
4	R-P17S	WT	G			4/6/20	1333		6	2		3					1		1	1	1	1	1	1	1	1	1	1		
5	R-P17I	WT	G				1128																							
6	R-P17D	WT	G				1304																							
7	R-P19S	WT	G			4/7/20	0925																							
8	R-P-19I	WT	G				0957																							
9	R-P19D	WT	G				1032																							
10	R-P21S	WT	G				1209																							
11	R-P21I	WT	G				1250																							
12	R-P21D	WT	G				1330																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature]	4/7/20	1640	E Brockett / Pace	4/8/20	0340
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl						

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1.1	Y	Y	Y
0.7			
0.5			
0.9			
1.7	N		
1.8			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/07/2020

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

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

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Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N	N	N	N	N		
1	R-P22S	WT	G																										
2	R-P22D	WT	G																										
3	R-P29S	WT	G																										
4	R-P29D	WT	G			4/7/20	1215		6	2		3					1												
5	R-P30S	WT	G			4/7/20	0920		6	2		3					1												
6	R-P31S	WT	G			4/7/20	1040		6	2		3					1												
7	R-CA-DUP-1	WT	G																										
8	R-CA-DUP-2	WT	G																										
9	~~R-CA-FB-1~~ R-CA-MS-2 17S	WT	G			4/6/20	1333		6	2		3					1												
10	~~R-CA-FB-2~~ R-CA-MSD-2 17S	WT	G				1333		6	2		3					1												
11	R-CA-MS-1 -17I	WT	G				1128		6	2		3					1												
12	R-CA-MSD-1 -17I	WT	G				1125		6	2		3					1												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] Golder	4/7/20	1640	E Brackett Pace	4/8/20	0340
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl						

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Seated Cooler (Y/N)	Samples Intact (Y/N)
1.1	Y	Y	Y
0.7			
0.5			
0.9			
17.7	N		
15.8			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/07/20

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

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

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Sample Condition Upon Receipt

WO# : 60333704

60333704

Client Name: Golder Assoc

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

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

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

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

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

Cooler Temperature (°C): As-read 1.2, 0.6 Corr. Factor +0.1 Corrected 1.3, 0.7

Date and initials of person examining contents: 4/10/20 (S)

Temperature should be above freezing to 6°C 0.7, 1.7, 19.5, 22.1 0.8, 1.8, 19.6, 22.2

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	FE2+
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	missing sample B-P290
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # 603173, 603222	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate	App III and Cat/An Metals*	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 226	Ferrous/Ferric Iron	SM4500-S2D Sulfide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	R-P05S	WT	G			4/9/20	1415		6	2		3					1		N	N	N	N	N	N	N	N	N	N		60333704
2	R-P10S	WT	G			4/8/20	1530		6	2		3					1		N	N	N	N	N	N	N	N	N	N		
3	R-P16S	WT	G			4/9/20	1446		6	2		3					1		N	N	N	N	N	N	N	N	N	N		
4	~~R-P17S~~ CA-FB-2	WT	G			4/8/20	1605		6	2		3					1		N	N	N	N	N	N	N	N	N	N		
5	R-P17I	WT	G																											
6	R-P17D	WT	G																											
7	R-P19S	WT	G																											
8	R-P-19I	WT	G																											
9	R-P19D	WT	G																											
10	R-P21S	WT	G																											
11	R-P21I	WT	G																											
12	R-P21D	WT	G																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Eric Schnieder / Golder	4/9/20	1735	E Brockett / Pace	4/10/20	0230
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl						

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	1.3 0.7	Y	Y	Y
	0.8 1.8			
	19.6 22.2	N		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 04/09/20

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

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

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

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Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE	COLLECTED TIME	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate (N)	App III and Cat/An Metals (N)	Alkalinity (N)	TDS (N)	Appendix IV Metals ** (N)	Mercury (N)	Radium 226 (N)	Radium 226 (N)	Ferrous/Ferric Iron (N)	SM4500-S2D Sulfide (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60333704
1	R-P22S	WT	G					4/8/20	1055		6	2		3					1		X	X	X	X	X	X	X	X	X		
2	R-P22D	WT	G					4/8/20	1000		6	2		3					1		X	X	X	X	X	X	X	X	X		
3	R-P29S	WT	G					4/8/20	1058		6	2		3					1		X	X	X	X	X	X	X	X	X		
4	~~R-P29D~~ R-29S Field Filtered	WT	G					↓	↓					1								X			X						
5	R-P30S	WT	G																													
6	~~R-P31S~~ R-P29D	WT	G					4/7/20	1220		6	2		3					1		X	X	X	X	X	X	X	X	X		
7	R-CA-DUP-1	WT	G																													
8	R-CA-DUP-2	WT	G					4/8/20	—		6	2		3					1		X	X	X	X	X	X	X	X	X		
9	R-CA-FB-1	WT	G																													
10	R-CA-FB-2	WT	G																													
11	R-CA-MS-1	WT	G																													
12	R-CA-MSD-2	WT	G																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] / Golder	4/9/20	1735	EBrockett / Pace	4/10/20	0230
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl						

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	1.3 0.7	Y	Y	Y
	0.8 1.8			
	19.6 22.2	N		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 04/09/20

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

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

MEMORANDUM

DATE May 11, 2020

Project No. 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA – CORRECTIVE ACTION SAMPLING APRIL 2020 - DATA PACKAGE 60333704

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren- Rush Island - RCPA- CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 05/11/2020

Laboratory: Pace Analytical - KS
SDG #: 60333704
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals); EPA 7470 (Mercury); SM2320B (Alkalinity); SM2540C (TDS); SM3500-Fe B#4 (Ferric, Ferrous Iron); SM4500-S-2 D (Total Sulfide); EPA 300.0 (Anions); EPA 903.1/904.0 (Radium 226/228)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-P17S, R-P17I, R-P17D, R-P-19S, R-P-19I, R-P19D, R-P21S, R-P21I, R-P21D, R-29D, R-P30S, R-P31S, R-P05S, R-P10S, R-P16S, R-P22S, R-P22D, R-P29S, R-CA-DUP-1, R-CA-DUP-2, R-CA-FB-1, R-CA-FB-2, R-CA-MS-1-P17I, R-CA-MSD-1-P17I, R-CA-MS-2-P17S, R-CA-MSD-2-P17S

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

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	x			04/06 - 04/09/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			
f) Field QC noted?	x			
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

Chain-of-Custody (COC)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was the COC properly completed?	x			Sample names for R-P19S and R-29D did not
b) Was the COC signed by both field and laboratory personnel?	x			match COC.
c) Were samples received in good condition?	x			

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			R-CA-DUP-1 @ R-P17D R-CA-DUP-2 @ R-P22S
b) Were field dup. precision criteria met (note RPD)?		x		
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?	x			

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

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

Comments/Notes:

R-CA-FB-1 @ R-P31S, R-CA-FB-2 @ R-P10S; Chloride, sulfate, sulfide, ferrous iron, and sodium were diluted in several samples, no qualification necessary.

Radiochemistry samples prepared outside of hold time in R-P22S; Ferrous Iron was analyzed outside of hold time in all samples.

FB: FB-1: Cadmium (0.084 J), TDS (5.5), Ferric Iron (0.0011 J) no qualification necessary; Radium-226 (1.05±0.586), qualified with a "J"

FB-2: TDS (15.5), Ferric Iron (0.00000000010 J), no qualification necessary.

Max Field DUP: DUP-1: RPD for Selenium 36% (Limit 20%)

MS low for -704003 Sodium, Selenium, Sulfide and RPD and MS high for -704003 Sulfate; MS low for -704002 Sulfide and RPD high for fluoride; MS low for unrelated sample.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-CA-FB-1	Ferrous Iron	0.035	UJ	Analyzed outside of hold time; analyte not detected
R-P17S	"	0.15	J	Analyzed outside of hold time
R-P17I	"	0.56	J	"
R-P17D	"	0.18	J	"
R-P19S	"	12.7	J	"
R-P19I	"	0.17	J	"
R-P19D	"	0.92	J	"
R-P21I	"	0.34	J	"
R-P21D	"	2.8	J	"
R-P29D	"	0.99	J	"
R-P30S	"	0.035	UJ	Analyzed outside of hold time; analyte not detected
R-P31S	"	0.18	J	Analyzed outside of hold time
R-CA-DUP-1	"	0.19	J	"
R-CA-DUP-2	"	0.035	UJ	Analyzed outside of hold time; analyte not detected
R-CA-FB-2	"	0.035	UJ	"
R-P05S	"	0.17	J	Analyzed outside of hold time
R-P10S	"	0.035	UJ	Analyzed outside of hold time; analyte not detected
R-P16S	"	0.035	UJ	"
R-P22S	"	0.035	UJ	"
R-P22D	"	1.1	J	Analyzed outside of hold time
R-P29S	"	0.035	UJ	Analyzed outside of hold time; analyte not detected
R-P17D	Selenium	0.33	J	RPD in DUP exceeded limits, PQL>Result>MDL
R-CA-DUP-1	Selenium	0.24	J	"
R-P17I	Sodium	229000	J	MS/MSD % recovery outside control limits
"	Selenium	2.2	J	"
"	Sulfide	1.5	J	MS/MSD outside limits
R-P17I	Sulfate	251	J	MS/MSD RPD outside limits
R-P17S	Fluoride	0.59	J	"
R-P21S	Ferrous Iron	12.2	J	Analyzed outside of hold time
R-P10S	Radium-226	0.795±0.485	J	Detected in field blank

Signature: Ann Muehlfeldt Date: 05/11/2020

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

June 19, 2020

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

RE: Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between May 20, 2020 and May 23, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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

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

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

CERTIFICATIONS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

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
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60337632001	**R-P21S**	Water	05/19/20 10:30	05/20/20 02:08
60337632002	**R-P21I**	Water	05/19/20 11:35	05/20/20 02:08
60337632003	**R-P21D**	Water	05/19/20 13:00	05/20/20 02:08
60337632004	**R-P22S**	Water	05/19/20 14:30	05/20/20 02:08
60337632005	**R-P22D**	Water	05/19/20 14:34	05/20/20 02:08
60337632006	**R-CA-DUP-1**	Water	05/19/20 08:00	05/20/20 02:08
60337632007	**R-CA-FB-1**	Water	05/19/20 13:10	05/20/20 02:08
60337632008	**R-CA-P21S-MS-1**	Water	05/19/20 10:30	05/20/20 02:08
60337632010	**R-P05S**	Water	05/22/20 09:55	05/23/20 05:08
60337632011	**R-P31S**	Water	05/22/20 11:11	05/23/20 05:08
60337951001	**R-P10S**	Water	05/21/20 11:23	05/22/20 02:25
60337951002	**R-P16S**	Water	05/20/20 10:10	05/22/20 02:25
60337951003	**R-P17S**	Water	05/21/20 10:45	05/22/20 02:25
60337951004	**R-P17I**	Water	05/21/20 11:45	05/22/20 02:25
60337951005	**R-P17D**	Water	05/20/20 15:25	05/22/20 02:25
60337951006	**R-P19S**	Water	05/20/20 11:40	05/22/20 02:25
60337951007	**R-P-19I**	Water	05/20/20 12:30	05/22/20 02:25
60337951008	**R-P19D**	Water	05/20/20 13:40	05/22/20 02:25
60337951009	**R-P29S**	Water	05/21/20 16:10	05/22/20 02:25
60337951010	**R-P29D**	Water	05/21/20 13:25	05/22/20 02:25
60337951011	**R-P30S**	Water	05/21/20 13:17	05/22/20 02:25
60337951012	**R-CA-DUP-2**	Water	05/20/20 08:00	05/22/20 02:25
60337951013	**R-CA-FB-2**	Water	05/21/20 13:50	05/22/20 02:25

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60337632001	**R-P21S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632002	**R-P21I**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632003	**R-P21D**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632004	**R-P22S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632005	**R-P22D**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632006	**R-CA-DUP-1**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632007	**R-CA-FB-1**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632008	**R-CA-P21S-MS-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60337632010	**R-P05S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337632011	**R-P31S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951001	**R-P10S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951002	**R-P16S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951003	**R-P17S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951004	**R-P17I**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951005	**R-P17D**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951006	**R-P19S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951007	**R-P-19I**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951008	**R-P19D**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951009	**R-P29S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951010	**R-P29D**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951011	**R-P30S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K
60337951012	**R-CA-DUP-2**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	JWR	3	PASI-K
60337951013	**R-CA-FB-2**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	MGS	1	PASI-K
		SM 2540C	CNB	1	PASI-K
		EPA 300.0	JWR	3	PASI-K

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

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21S **Lab ID: 60337632001** Collected: 05/19/20 10:30 Received: 05/20/20 02:08 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	**605**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 12:48	7440-39-3	
Boron	**393**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 12:48	7440-42-8	
Calcium	**292000**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 12:48	7440-70-2	M1
Cobalt	**2.2J**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 12:48	7440-48-4	
Iron	**47800**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 12:48	7439-89-6	
Lead	**4.7J**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 12:48	7439-92-1	
Lithium	**20.7**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 12:48	7439-93-2	
Magnesium	**65200**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 12:48	7439-95-4	
Manganese	**4970**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 12:48	7439-96-5	
Molybdenum	**1.9J**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 12:48	7439-98-7	
Potassium	**5900**	ug/L	500	189	1	06/03/20 16:00	06/04/20 12:48	7440-09-7	
Sodium	**31700**	ug/L	500	107	1	06/03/20 16:00	06/04/20 12:48	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:32	7440-36-0	
Arsenic	**67.6**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:32	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:32	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:32	7440-47-3	
Selenium	**0.36J**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:32	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**926**	mg/L	20.0	8.4	1		05/29/20 10:56		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1060**	mg/L	13.3	13.3	1		05/22/20 13:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**38.7**	mg/L	5.0	1.9	5		06/03/20 19:37	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.075	1		06/03/20 18:24	16984-48-8	
Sulfate	**45.5**	mg/L	5.0	1.4	5		06/03/20 19:37	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21I **Lab ID: 60337632002** Collected: 05/19/20 11:35 Received: 05/20/20 02:08 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	**26.6**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:05	7440-39-3	
Boron	**2600**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:05	7440-42-8	
Calcium	**14600**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:05	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:05	7440-48-4	
Iron	**330**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:05	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:05	7439-92-1	
Lithium	**17.2**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:05	7439-93-2	
Magnesium	**1560**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:05	7439-95-4	
Manganese	**44.6**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:05	7439-96-5	
Molybdenum	**147**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:05	7439-98-7	
Potassium	**4250**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:05	7440-09-7	
Sodium	**106000**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:05	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:36	7440-36-0	
Arsenic	**5.2**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:36	7440-38-2	
Cadmium	**0.098J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:36	7440-43-9	
Chromium	**0.31J**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:36	7440-47-3	
Selenium	**0.57J**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:36	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**137**	mg/L	20.0	8.4	1		05/29/20 11:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**375**	mg/L	5.0	5.0	1		05/22/20 13:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**30.4**	mg/L	10.0	3.9	10		06/03/20 20:35	16887-00-6	
Fluoride	**1.0**	mg/L	0.20	0.075	1		06/03/20 20:20	16984-48-8	
Sulfate	**91.6**	mg/L	10.0	2.8	10		06/03/20 20:35	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21D **Lab ID: 60337632003** Collected: 05/19/20 13:00 Received: 05/20/20 02:08 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	**484**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:07	7440-39-3	
Boron	**4180**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:07	7440-42-8	
Calcium	**334000**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:07	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:07	7440-48-4	
Iron	**11700**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:07	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:07	7439-92-1	
Lithium	**239**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:07	7439-93-2	
Magnesium	**93400**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:07	7439-95-4	
Manganese	**1900**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:07	7439-96-5	
Molybdenum	**203**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:07	7439-98-7	
Potassium	**17100**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:07	7440-09-7	
Sodium	**42900**	ug/L	1500	321	3	06/03/20 16:00	06/05/20 17:24	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:38	7440-36-0	
Arsenic	**0.58J**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:38	7440-38-2	
Cadmium	**0.079J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:38	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:38	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:38	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**227**	mg/L	20.0	8.4	1		05/29/20 11:15		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**3840**	mg/L	100	100	1		05/22/20 13:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		06/03/20 20:50	16887-00-6	
Fluoride	**0.79**	mg/L	0.20	0.075	1		06/03/20 20:50	16984-48-8	
Sulfate	**192**	mg/L	20.0	5.6	20		06/04/20 14:40	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P22S **Lab ID: 60337632004** Collected: 05/19/20 14:30 Received: 05/20/20 02:08 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	**233**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:10	7440-39-3	
Boron	**458**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:10	7440-42-8	
Calcium	**297000**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:10	7440-70-2	
Cobalt	**3.4J**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:10	7440-48-4	
Iron	**3480**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:10	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:10	7439-92-1	
Lithium	**71.1**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:10	7439-93-2	
Magnesium	**63600**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:10	7439-95-4	
Manganese	**958**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:10	7439-96-5	
Molybdenum	**8.8J**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:10	7439-98-7	
Potassium	**8670**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:10	7440-09-7	
Sodium	**59200**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:10	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:40	7440-36-0	
Arsenic	**1.5**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:40	7440-38-2	
Cadmium	**0.066J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:40	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:40	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:40	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**743**	mg/L	20.0	8.4	1		05/29/20 11:22		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1290**	mg/L	13.3	13.3	1		05/22/20 13:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**55.2**	mg/L	10.0	3.9	10		06/03/20 22:17	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.075	1		06/03/20 21:33	16984-48-8	
Sulfate	**282**	mg/L	50.0	13.9	50		06/04/20 14:55	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P22D **Lab ID: 60337632005** Collected: 05/19/20 14:34 Received: 05/20/20 02:08 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	**67.7**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:12	7440-39-3	
Boron	**10200**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:12	7440-42-8	
Calcium	**29600**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:12	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:12	7440-48-4	
Iron	**1440**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:12	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:12	7439-92-1	
Lithium	**26.5**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:12	7439-93-2	
Magnesium	**4400**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:12	7439-95-4	
Manganese	**114**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:12	7439-96-5	
Molybdenum	**369**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:12	7439-98-7	
Potassium	**5220**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:12	7440-09-7	
Sodium	**163000**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:12	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:41	7440-36-0	
Arsenic	**8.2**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:41	7440-38-2	
Cadmium	**0.12J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:41	7440-43-9	
Chromium	**0.89J**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:41	7440-47-3	
Selenium	**0.48J**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:41	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**304**	mg/L	20.0	8.4	1		05/29/20 11:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**588**	mg/L	10.0	10.0	1		05/22/20 13:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**29.4**	mg/L	5.0	1.9	5		06/03/20 22:47	16887-00-6	
Fluoride	**2.4**	mg/L	0.20	0.075	1		06/03/20 22:32	16984-48-8	
Sulfate	**89.5**	mg/L	5.0	1.4	5		06/03/20 22:47	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-DUP-1 **Lab ID: 60337632006** Collected: 05/19/20 08:00 Received: 05/20/20 02:08 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	**26.4**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:15	7440-39-3	
Boron	**2590**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:15	7440-42-8	
Calcium	**14600**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:15	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:15	7440-48-4	
Iron	**311**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:15	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:15	7439-92-1	
Lithium	**17.2**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:15	7439-93-2	
Magnesium	**1560**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:15	7439-95-4	
Manganese	**42.7**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:15	7439-96-5	
Molybdenum	**145**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:15	7439-98-7	
Potassium	**4310**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:15	7440-09-7	
Sodium	**105000**	ug/L	500	107	1	06/03/20 16:00	06/04/20 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	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:50	7440-36-0	
Arsenic	**5.2**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:50	7440-38-2	
Cadmium	**0.089J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:50	7440-43-9	
Chromium	**0.54J**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:50	7440-47-3	
Selenium	**0.53J**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:50	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**140**	mg/L	20.0	8.4	1		05/29/20 11:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**376**	mg/L	5.0	5.0	1		05/22/20 13:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**30.3**	mg/L	10.0	3.9	10		06/03/20 23:16	16887-00-6	
Fluoride	**1.0**	mg/L	0.20	0.075	1		06/03/20 23:01	16984-48-8	
Sulfate	**91.8**	mg/L	10.0	2.8	10		06/03/20 23:16	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-FB-1 **Lab ID: 60337632007** Collected: 05/19/20 13:10 Received: 05/20/20 02:08 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	**<1.8**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:17	7440-39-3	
Boron	**<11.7**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:17	7440-42-8	
Calcium	**50.2J**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:17	7440-70-2	B
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:17	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:17	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:17	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:17	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:17	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:17	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:17	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:17	7440-09-7	
Sodium	**363J**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:17	7440-23-5	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:48	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:48	7440-38-2	
Cadmium	**0.070J**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:48	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:48	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:48	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		05/29/20 11:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		05/22/20 13:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		06/03/20 23:45	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		06/03/20 23:45	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		06/03/20 23:45	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P05S **Lab ID: 60337632010** Collected: 05/22/20 09:55 Received: 05/23/20 05:08 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	**173**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:35	7440-39-3	
Boron	**4200**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:35	7440-42-8	
Calcium	**67400**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:35	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:35	7440-48-4	
Iron	**10100**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:35	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:35	7439-92-1	
Lithium	**20.0**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:35	7439-93-2	
Magnesium	**22000**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:35	7439-95-4	
Manganese	**335**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:35	7439-96-5	
Molybdenum	**13.4J**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:35	7439-98-7	
Potassium	**5870**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:35	7440-09-7	
Sodium	**33600**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:35	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:51	7440-36-0	
Arsenic	**136**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:51	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:51	7440-43-9	
Chromium	**0.44J**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:51	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:51	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**272**	mg/L	20.0	8.4	1		06/03/20 13:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**372**	mg/L	5.0	5.0	1		05/28/20 13:25		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**22.8**	mg/L	5.0	1.9	5		06/02/20 19:03	16887-00-6	B
Fluoride	**0.38**	mg/L	0.20	0.075	1		06/02/20 18:47	16984-48-8	
Sulfate	**26.9**	mg/L	5.0	1.4	5		06/02/20 19:03	14808-79-8	

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

ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P31S **Lab ID: 60337632011** Collected: 05/22/20 11:11 Received: 05/23/20 05:08 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	**134**	ug/L	5.0	1.8	1	06/03/20 16:00	06/04/20 13:37	7440-39-3	
Boron	**322**	ug/L	100	11.7	1	06/03/20 16:00	06/04/20 13:37	7440-42-8	
Calcium	**62500**	ug/L	200	32.4	1	06/03/20 16:00	06/04/20 13:37	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/03/20 16:00	06/04/20 13:37	7440-48-4	
Iron	**3470**	ug/L	50.0	26.8	1	06/03/20 16:00	06/04/20 13:37	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:37	7439-92-1	
Lithium	**8.6J**	ug/L	10.0	4.6	1	06/03/20 16:00	06/04/20 13:37	7439-93-2	
Magnesium	**11100**	ug/L	50.0	19.7	1	06/03/20 16:00	06/04/20 13:37	7439-95-4	
Manganese	**1180**	ug/L	5.0	0.97	1	06/03/20 16:00	06/04/20 13:37	7439-96-5	
Molybdenum	**7.6J**	ug/L	20.0	1.7	1	06/03/20 16:00	06/04/20 13:37	7439-98-7	
Potassium	**3960**	ug/L	500	189	1	06/03/20 16:00	06/04/20 13:37	7440-09-7	
Sodium	**12100**	ug/L	500	107	1	06/03/20 16:00	06/04/20 13:37	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/03/20 16:00	06/04/20 16:53	7440-36-0	
Arsenic	**14.3**	ug/L	1.0	0.086	1	06/03/20 16:00	06/04/20 16:53	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/03/20 16:00	06/04/20 16:53	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/03/20 16:00	06/04/20 16:53	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/03/20 16:00	06/04/20 16:53	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**212**	mg/L	20.0	8.4	1		06/03/20 13:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**260**	mg/L	5.0	5.0	1		05/28/20 13:25		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**3.2**	mg/L	1.0	0.39	1		06/02/20 19:20	16887-00-6	B
Fluoride	**0.44**	mg/L	0.20	0.075	1		06/02/20 19:20	16984-48-8	
Sulfate	**15.5**	mg/L	1.0	0.28	1		06/02/20 19:20	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P10S **Lab ID: 60337951001** Collected: 05/21/20 11:23 Received: 05/22/20 02:25 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	**112**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:05	7440-39-3	
Boron	**1960**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:05	7440-42-8	
Calcium	**65200**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:05	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:05	7440-48-4	
Iron	**398**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:05	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:05	7439-92-1	
Lithium	**17.7**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:05	7439-93-2	
Magnesium	**11000**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:05	7439-95-4	
Manganese	**1190**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:05	7439-96-5	
Molybdenum	**86.9**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:05	7439-98-7	
Potassium	**4550**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:05	7440-09-7	
Sodium	**81200**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:05	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	0.097	1	06/01/20 13:45	06/04/20 15:52	7440-36-0	
Arsenic	**5.2**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 15:52	7440-38-2	
Cadmium	**0.28J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 15:52	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 15:52	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 15:52	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**253**	mg/L	20.0	8.4	1		06/03/20 10:36		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**451**	mg/L	5.0	5.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**19.4**	mg/L	1.0	0.39	1		06/01/20 18:07	16887-00-6	
Fluoride	**0.50**	mg/L	0.20	0.075	1		06/01/20 18:07	16984-48-8	
Sulfate	**131**	mg/L	20.0	5.6	20		06/01/20 18:36	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P16S **Lab ID: 60337951002** Collected: 05/20/20 10:10 Received: 05/22/20 02:25 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	**78.4**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:12	7440-39-3	
Boron	**2770**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:12	7440-42-8	
Calcium	**148000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:12	7440-70-2	
Cobalt	**2.4J**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:12	7440-48-4	
Iron	**1760**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:12	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:12	7439-92-1	
Lithium	**33.5**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:12	7439-93-2	
Magnesium	**25100**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:12	7439-95-4	
Manganese	**432**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:12	7439-96-5	
Molybdenum	**55.3**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:12	7439-98-7	
Potassium	**6290**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:12	7440-09-7	
Sodium	**95100**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:12	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 15:53	7440-36-0	
Arsenic	**2.7**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 15:53	7440-38-2	
Cadmium	**0.098J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 15:53	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 15:53	7440-47-3	
Selenium	**0.22J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 15:53	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**342**	mg/L	20.0	8.4	1		06/01/20 16:27		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**903**	mg/L	10.0	10.0	1		05/26/20 15:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**48.5**	mg/L	10.0	3.9	10		06/01/20 19:05	16887-00-6	
Fluoride	**0.59**	mg/L	0.20	0.075	1		06/01/20 18:51	16984-48-8	
Sulfate	**323**	mg/L	20.0	5.6	20		06/01/20 19:20	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17S **Lab ID: 60337951003** Collected: 05/21/20 10:45 Received: 05/22/20 02:25 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	**104**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:15	7440-39-3	
Boron	**2040**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:15	7440-42-8	
Calcium	**117000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:15	7440-70-2	
Cobalt	**2.7J**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:15	7440-48-4	
Iron	**2980**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:15	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:15	7439-92-1	
Lithium	**32.8**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:15	7439-93-2	
Magnesium	**28000**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:15	7439-95-4	
Manganese	**2010**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:15	7439-96-5	
Molybdenum	**52.1**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:15	7439-98-7	
Potassium	**3390**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:15	7440-09-7	
Sodium	**150000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:15	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 15:58	7440-36-0	
Arsenic	**34.6**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 15:58	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 15:58	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 15:58	7440-47-3	
Selenium	**0.34J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 15:58	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**512**	mg/L	20.0	8.4	1		06/03/20 10:42		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**849**	mg/L	10.0	10.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**42.7**	mg/L	5.0	1.9	5		06/01/20 19:49	16887-00-6	
Fluoride	**0.82**	mg/L	0.20	0.075	1		06/01/20 19:34	16984-48-8	
Sulfate	**195**	mg/L	20.0	5.6	20		06/01/20 20:04	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17I **Lab ID: 60337951004** Collected: 05/21/20 11:45 Received: 05/22/20 02:25 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	**15.1**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:17	7440-39-3	
Boron	**2620**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:17	7440-42-8	
Calcium	**8740**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:17	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:17	7440-48-4	
Iron	**418**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:17	7439-89-6	
Lead	**21.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:17	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:17	7439-93-2	
Magnesium	**293**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:17	7439-95-4	
Manganese	**9.7**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:17	7439-96-5	
Molybdenum	**119**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:17	7439-98-7	
Potassium	**1970**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:17	7440-09-7	
Sodium	**218000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:17	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.60J**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:00	7440-36-0	
Arsenic	**63.9**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:00	7440-38-2	
Cadmium	**0.65**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:00	7440-43-9	
Chromium	**0.83J**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:00	7440-47-3	
Selenium	**1.9**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:00	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**223**	mg/L	20.0	8.4	1		06/03/20 10:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**770**	mg/L	10.0	10.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**24.3**	mg/L	2.0	0.78	2		06/01/20 21:02	16887-00-6	
Fluoride	**2.3**	mg/L	0.20	0.075	1		06/01/20 20:47	16984-48-8	
Sulfate	**264**	mg/L	20.0	5.6	20		06/01/20 21:17	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17D **Lab ID: 60337951005** Collected: 05/20/20 15:25 Received: 05/22/20 02:25 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	**108**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:30	7440-39-3	
Boron	**7810**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:30	7440-42-8	
Calcium	**46100**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:30	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:30	7440-48-4	
Iron	**3050**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:30	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:30	7439-92-1	
Lithium	**42.3**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:30	7439-93-2	
Magnesium	**10400**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:30	7439-95-4	
Manganese	**455**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:30	7439-96-5	
Molybdenum	**666**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:30	7439-98-7	
Potassium	**7060**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:30	7440-09-7	
Sodium	**131000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:30	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:02	7440-36-0	
Arsenic	**1.2**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:02	7440-38-2	
Cadmium	**0.24J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:02	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:02	7440-47-3	
Selenium	**0.26J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:02	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**120**	mg/L	20.0	8.4	1		06/01/20 16:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**595**	mg/L	10.0	10.0	1		05/26/20 15:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**27.9**	mg/L	5.0	1.9	5		06/01/20 21:46	16887-00-6	
Fluoride	**0.61**	mg/L	0.20	0.075	1		06/01/20 21:31	16984-48-8	
Sulfate	**301**	mg/L	50.0	13.9	50		06/01/20 22:01	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P19S **Lab ID: 60337951006** Collected: 05/20/20 11:40 Received: 05/22/20 02:25 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	**541**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:32	7440-39-3	
Boron	**1760**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:32	7440-42-8	
Calcium	**230000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:32	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:32	7440-48-4	
Iron	**35700**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:32	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:32	7439-92-1	
Lithium	**54.4**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:32	7439-93-2	
Magnesium	**42000**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:32	7439-95-4	
Manganese	**1920**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:32	7439-96-5	
Molybdenum	**2.4J**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:32	7439-98-7	
Potassium	**8460**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:32	7440-09-7	
Sodium	**48500**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:32	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:08	7440-36-0	
Arsenic	**21.4**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:08	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:08	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:08	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:08	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**822**	mg/L	20.0	8.4	1		06/01/20 16:40		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**963**	mg/L	13.3	13.3	1		05/26/20 15:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**30.4**	mg/L	5.0	1.9	5		06/01/20 22:44	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.075	1		06/01/20 22:15	16984-48-8	
Sulfate	**19.3**	mg/L	1.0	0.28	1		06/01/20 22:15	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P-19I **Lab ID: 60337951007** Collected: 05/20/20 12:30 Received: 05/22/20 02:25 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	**11.2**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:35	7440-39-3	
Boron	**5370**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:35	7440-42-8	
Calcium	**6900**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:35	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:35	7440-48-4	
Iron	**92.4**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:35	7439-89-6	
Lead	**8.5J**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:35	7439-92-1	
Lithium	**12.8**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:35	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:35	7439-95-4	
Manganese	**3.4J**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:35	7439-96-5	
Molybdenum	**218**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:35	7439-98-7	
Potassium	**12200**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:35	7440-09-7	
Sodium	**264000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:35	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**4.6**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:10	7440-36-0	
Arsenic	**243**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:10	7440-38-2	
Cadmium	**0.48J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:10	7440-43-9	
Chromium	**0.24J**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:10	7440-47-3	
Selenium	**2.1**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:10	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**290**	mg/L	20.0	8.4	1		06/01/20 16:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**958**	mg/L	10.0	10.0	1		05/26/20 15:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**22.2**	mg/L	2.0	0.78	2		06/01/20 23:57	16887-00-6	
Fluoride	**2.0**	mg/L	0.20	0.075	1		06/01/20 23:43	16984-48-8	
Sulfate	**320**	mg/L	20.0	5.6	20		06/02/20 00:12	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P19D **Lab ID: 60337951008** Collected: 05/20/20 13:40 Received: 05/22/20 02:25 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	**85.7**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:37	7440-39-3	
Boron	**10900**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:37	7440-42-8	
Calcium	**26300**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:37	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:37	7440-48-4	
Iron	**1660**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:37	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:37	7439-92-1	
Lithium	**21.2**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:37	7439-93-2	
Magnesium	**3800**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:37	7439-95-4	
Manganese	**206**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:37	7439-96-5	
Molybdenum	**846**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:37	7439-98-7	
Potassium	**3300**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:37	7440-09-7	
Sodium	**171000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:37	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:12	7440-36-0	
Arsenic	**0.57J**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:12	7440-38-2	
Cadmium	**0.31J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:12	7440-43-9	
Chromium	**0.31J**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:12	7440-47-3	
Selenium	**0.34J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:12	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**209**	mg/L	20.0	8.4	1		06/01/20 16:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**690**	mg/L	10.0	10.0	1		05/26/20 15:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**25.9**	mg/L	5.0	1.9	5		06/02/20 00:41	16887-00-6	
Fluoride	**2.2**	mg/L	0.20	0.075	1		06/02/20 00:27	16984-48-8	
Sulfate	**217**	mg/L	20.0	5.6	20		06/02/20 00:56	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P29S **Lab ID: 60337951009** Collected: 05/21/20 16:10 Received: 05/22/20 02:25 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	**359**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:40	7440-39-3	
Boron	**93.6J**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:40	7440-42-8	
Calcium	**141000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:40	7440-70-2	
Cobalt	**3.4J**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:40	7440-48-4	
Iron	**10300**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:40	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:40	7439-92-1	
Lithium	**28.4**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:40	7439-93-2	
Magnesium	**33300**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:40	7439-95-4	
Manganese	**578**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:40	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:40	7439-98-7	
Potassium	**5570**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:40	7440-09-7	
Sodium	**16600**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:40	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:13	7440-36-0	
Arsenic	**31.0**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:13	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:13	7440-43-9	
Chromium	**0.69J**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:13	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:13	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**482**	mg/L	20.0	8.4	1		06/03/20 10:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**557**	mg/L	10.0	10.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**18.4**	mg/L	1.0	0.39	1		06/02/20 01:10	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	0.075	1		06/02/20 01:10	16984-48-8	
Sulfate	**23.5**	mg/L	2.0	0.56	2		06/02/20 16:33	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P29D **Lab ID: 60337951010** Collected: 05/21/20 13:25 Received: 05/22/20 02:25 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	**140**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:42	7440-39-3	
Boron	**99.4J**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:42	7440-42-8	
Calcium	**87400**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:42	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:42	7440-48-4	
Iron	**4030**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:42	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:42	7439-92-1	
Lithium	**49.5**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:42	7439-93-2	
Magnesium	**26000**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:42	7439-95-4	
Manganese	**140**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:42	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:42	7439-98-7	
Potassium	**4710**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:42	7440-09-7	
Sodium	**70200**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:42	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:15	7440-36-0	
Arsenic	**0.96J**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:15	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:15	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:15	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:15	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**332**	mg/L	20.0	8.4	1		06/03/20 10:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**550**	mg/L	10.0	10.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**124**	mg/L	10.0	3.9	10		06/02/20 16:47	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.075	1		06/02/20 01:25	16984-48-8	
Sulfate	**23.1**	mg/L	5.0	1.4	5		06/02/20 01:40	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P30S **Lab ID: 60337951011** Collected: 05/21/20 13:17 Received: 05/22/20 02:25 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	**82.9**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 12:45	7440-39-3	
Boron	**846**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 12:45	7440-42-8	
Calcium	**108000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 12:45	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 12:45	7440-48-4	
Iron	**1270**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 12:45	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:45	7439-92-1	
Lithium	**34.3**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 12:45	7439-93-2	
Magnesium	**18900**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 12:45	7439-95-4	
Manganese	**268**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 12:45	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 12:45	7439-98-7	
Potassium	**5760**	ug/L	500	189	1	06/01/20 13:45	06/02/20 12:45	7440-09-7	
Sodium	**55400**	ug/L	500	107	1	06/01/20 13:45	06/02/20 12:45	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:17	7440-36-0	
Arsenic	**2.5**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:17	7440-38-2	
Cadmium	**0.066J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:17	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:17	7440-47-3	
Selenium	**0.37J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:17	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**267**	mg/L	20.0	8.4	1		06/03/20 11:13		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**616**	mg/L	10.0	10.0	1		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**51.5**	mg/L	5.0	1.9	5		06/02/20 02:53	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.075	1		06/02/20 02:38	16984-48-8	
Sulfate	**143**	mg/L	20.0	5.6	20		06/02/20 01:54	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-DUP-2 **Lab ID: 60337951012** Collected: 05/20/20 08:00 Received: 05/22/20 02:25 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	**81.0**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 13:00	7440-39-3	
Boron	**2790**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 13:00	7440-42-8	
Calcium	**152000**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 13:00	7440-70-2	
Cobalt	**2.5J**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 13:00	7440-48-4	
Iron	**1810**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 13:00	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 13:00	7439-92-1	
Lithium	**32.3**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 13:00	7439-93-2	
Magnesium	**25400**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 13:00	7439-95-4	
Manganese	**434**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 13:00	7439-96-5	
Molybdenum	**56.3**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 13:00	7439-98-7	
Potassium	**6480**	ug/L	500	189	1	06/01/20 13:45	06/02/20 13:00	7440-09-7	
Sodium	**98000**	ug/L	500	107	1	06/01/20 13:45	06/02/20 13:00	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:18	7440-36-0	
Arsenic	**2.8**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:18	7440-38-2	
Cadmium	**0.10J**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:18	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:18	7440-47-3	
Selenium	**0.22J**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:18	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**336**	mg/L	20.0	8.4	1		06/01/20 17:06		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**886**	mg/L	10.0	10.0	1		05/26/20 15:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**47.6**	mg/L	10.0	3.9	10		06/02/20 03:22	16887-00-6	
Fluoride	**0.59**	mg/L	0.20	0.075	1		06/02/20 03:07	16984-48-8	
Sulfate	**312**	mg/L	50.0	13.9	50		06/02/20 03:36	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-FB-2 **Lab ID: 60337951013** Collected: 05/21/20 13:50 Received: 05/22/20 02:25 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	**<1.8**	ug/L	5.0	1.8	1	06/01/20 13:45	06/02/20 13:02	7440-39-3	
Boron	**<11.7**	ug/L	100	11.7	1	06/01/20 13:45	06/02/20 13:02	7440-42-8	
Calcium	**51.4J**	ug/L	200	32.4	1	06/01/20 13:45	06/02/20 13:02	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	06/01/20 13:45	06/02/20 13:02	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	06/01/20 13:45	06/02/20 13:02	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 13:02	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	06/01/20 13:45	06/02/20 13:02	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	06/01/20 13:45	06/02/20 13:02	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	06/01/20 13:45	06/02/20 13:02	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	06/01/20 13:45	06/02/20 13:02	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	06/01/20 13:45	06/02/20 13:02	7440-09-7	
Sodium	**129J**	ug/L	500	107	1	06/01/20 13:45	06/02/20 13:02	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	06/01/20 13:45	06/04/20 16:23	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	06/01/20 13:45	06/04/20 16:23	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	06/01/20 13:45	06/04/20 16:23	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	06/01/20 13:45	06/04/20 16:23	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	06/01/20 13:45	06/04/20 16:23	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		06/03/20 11:16		
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		05/28/20 13:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		06/02/20 03:51	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		06/02/20 03:51	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		06/02/20 03:51	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657663
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

METHOD BLANK: 2667125
Matrix: Water
Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	06/02/20 12:00	
Boron	ug/L	<11.7	100	11.7	06/02/20 12:00	
Calcium	ug/L	<32.4	200	32.4	06/02/20 12:00	
Cobalt	ug/L	<1.5	5.0	1.5	06/02/20 12:00	
Iron	ug/L	<26.8	50.0	26.8	06/02/20 12:00	
Lead	ug/L	<4.6	10.0	4.6	06/02/20 12:00	
Lithium	ug/L	<4.6	10.0	4.6	06/02/20 12:00	
Magnesium	ug/L	<19.7	50.0	19.7	06/02/20 12:00	
Manganese	ug/L	<0.97	5.0	0.97	06/02/20 12:00	
Molybdenum	ug/L	<1.7	20.0	1.7	06/02/20 12:00	
Potassium	ug/L	<189	500	189	06/02/20 12:00	
Sodium	ug/L	<107	500	107	06/02/20 12:00	

LABORATORY CONTROL SAMPLE: 2667126

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	979	98	85-115	
Boron	ug/L	1000	990	99	85-115	
Calcium	ug/L	10000	9780	98	85-115	
Cobalt	ug/L	1000	994	99	85-115	
Iron	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	1030	103	85-115	
Magnesium	ug/L	10000	9940	99	85-115	
Manganese	ug/L	1000	1000	100	85-115	
Molybdenum	ug/L	1000	974	97	85-115	
Potassium	ug/L	10000	9560	96	85-115	
Sodium	ug/L	10000	10000	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667127 2667128

Parameter	Units	60337951001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	112	1000	1000	1040	1050	93	94	70-130	1	20	
Boron	ug/L	1960	1000	1000	2900	2870	94	91	70-130	1	20	
Calcium	ug/L	65200	10000	10000	73000	73000	79	79	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667127 2667128

Parameter	Units	60337951001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	<1.5	1000	1000	934	946	93	94	70-130	1	20	
Iron	ug/L	398	10000	10000	10100	10200	97	98	70-130	0	20	
Lead	ug/L	<4.6	1000	1000	958	963	96	96	70-130	1	20	
Lithium	ug/L	17.7	1000	1000	956	962	94	94	70-130	1	20	
Magnesium	ug/L	11000	10000	10000	20000	20100	91	91	70-130	0	20	
Manganese	ug/L	1190	1000	1000	2130	2110	94	92	70-130	1	20	
Molybdenum	ug/L	86.9	1000	1000	1030	1040	94	95	70-130	1	20	
Potassium	ug/L	4550	10000	10000	13900	14000	93	94	70-130	1	20	
Sodium	ug/L	81200	10000	10000	88700	88700	75	76	70-130	0	20	

MATRIX SPIKE SAMPLE: 2667129

Parameter	Units	60337951011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	82.9	1000	1040	96	70-130	
Boron	ug/L	846	1000	1830	98	70-130	
Calcium	ug/L	108000	10000	121000	124	70-130	
Cobalt	ug/L	<1.5	1000	944	94	70-130	
Iron	ug/L	1270	10000	11200	100	70-130	
Lead	ug/L	<4.6	1000	966	96	70-130	
Lithium	ug/L	34.3	1000	1000	97	70-130	
Magnesium	ug/L	18900	10000	28700	98	70-130	
Manganese	ug/L	268	1000	1230	96	70-130	
Molybdenum	ug/L	<1.7	1000	953	95	70-130	
Potassium	ug/L	5760	10000	15800	100	70-130	
Sodium	ug/L	55400	10000	66200	109	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 658199
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007, 60337632010, 60337632011

METHOD BLANK: 2668860
Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007, 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	06/04/20 12:40	
Boron	ug/L	<11.7	100	11.7	06/04/20 12:40	
Calcium	ug/L	34.3J	200	32.4	06/04/20 12:40	
Cobalt	ug/L	<1.5	5.0	1.5	06/04/20 12:40	
Iron	ug/L	<26.8	50.0	26.8	06/04/20 12:40	
Lead	ug/L	<4.6	10.0	4.6	06/04/20 12:40	
Lithium	ug/L	<4.6	10.0	4.6	06/04/20 12:40	
Magnesium	ug/L	<19.7	50.0	19.7	06/04/20 12:40	
Manganese	ug/L	<0.97	5.0	0.97	06/04/20 12:40	
Molybdenum	ug/L	<1.7	20.0	1.7	06/04/20 12:40	
Potassium	ug/L	<189	500	189	06/04/20 12:40	
Sodium	ug/L	275J	500	107	06/04/20 12:40	

LABORATORY CONTROL SAMPLE: 2668861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	1010	101	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Cobalt	ug/L	1000	1050	105	85-115	
Iron	ug/L	10000	10300	103	85-115	
Lead	ug/L	1000	1070	107	85-115	
Lithium	ug/L	1000	1040	104	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Manganese	ug/L	1000	1020	102	85-115	
Molybdenum	ug/L	1000	1040	104	85-115	
Potassium	ug/L	10000	10100	101	85-115	
Sodium	ug/L	10000	10600	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668862 2668863

Parameter	Units	60337632001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	605	1000	1000	1620	1580	101	97	70-130	3	20	
Boron	ug/L	393	1000	1000	1420	1380	103	98	70-130	3	20	
Calcium	ug/L	292000	10000	10000	301000	292000	85	1	70-130	3	20	M1

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668862 2668863

Parameter	Units	60337632001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	2.2J	1000	1000	1020	990	102	99	70-130	3	20	
Iron	ug/L	47800	10000	10000	57700	56000	99	82	70-130	3	20	
Lead	ug/L	4.7J	1000	1000	1020	990	102	98	70-130	3	20	
Lithium	ug/L	20.7	1000	1000	1050	1020	103	100	70-130	3	20	
Magnesium	ug/L	65200	10000	10000	75000	72300	98	70	70-130	4	20	
Manganese	ug/L	4970	1000	1000	5880	5700	91	74	70-130	3	20	
Molybdenum	ug/L	1.9J	1000	1000	1050	1010	105	101	70-130	3	20	
Potassium	ug/L	5900	10000	10000	16300	15800	104	99	70-130	3	20	
Sodium	ug/L	31700	10000	10000	41700	40600	100	89	70-130	3	20	

MATRIX SPIKE SAMPLE: 2668864

Parameter	Units	60337632011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	134	1000	1160	102	70-130	
Boron	ug/L	322	1000	1340	101	70-130	
Calcium	ug/L	62500	10000	74200	117	70-130	
Cobalt	ug/L	<1.5	1000	1030	103	70-130	
Iron	ug/L	3470	10000	13800	103	70-130	
Lead	ug/L	<4.6	1000	1040	104	70-130	
Lithium	ug/L	8.6J	1000	1030	102	70-130	
Magnesium	ug/L	11100	10000	21100	100	70-130	
Manganese	ug/L	1180	1000	2200	102	70-130	
Molybdenum	ug/L	7.6J	1000	1040	103	70-130	
Potassium	ug/L	3960	10000	14100	102	70-130	
Sodium	ug/L	12100	10000	22500	104	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657667
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

METHOD BLANK: 2667143
Matrix: Water
Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	06/04/20 15:48	
Arsenic	ug/L	<0.086	1.0	0.086	06/04/20 15:48	
Cadmium	ug/L	<0.056	0.50	0.056	06/04/20 15:48	
Chromium	ug/L	<0.22	1.0	0.22	06/04/20 15:48	
Selenium	ug/L	<0.18	1.0	0.18	06/04/20 15:48	

LABORATORY CONTROL SAMPLE: 2667144

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	37.1	93	85-115	
Arsenic	ug/L	40	36.6	91	85-115	
Cadmium	ug/L	40	36.1	90	85-115	
Chromium	ug/L	40	36.1	90	85-115	
Selenium	ug/L	40	35.9	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667145 2667146

Parameter	Units	60337951002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.097	40	40	37.9	38.4	95	96	70-130	1	20	
Arsenic	ug/L	2.7	40	40	39.6	40.1	92	94	70-130	1	20	
Cadmium	ug/L	0.098J	40	40	35.5	35.7	89	89	70-130	0	20	
Chromium	ug/L	<0.22	40	40	35.1	35.3	88	88	70-130	0	20	
Selenium	ug/L	0.22J	40	40	34.1	34.4	85	86	70-130	1	20	

MATRIX SPIKE SAMPLE: 2667147

Parameter	Units	60337951012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.097	40	38.1	95	70-130	
Arsenic	ug/L	2.8	40	41.8	97	70-130	
Cadmium	ug/L	0.10J	40	35.8	89	70-130	
Chromium	ug/L	<0.22	40	35.6	89	70-130	
Selenium	ug/L	0.22J	40	35.1	87	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 658198
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007, 60337632010, 60337632011

METHOD BLANK: 2668854
Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007, 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	06/04/20 16:28	
Arsenic	ug/L	<0.086	1.0	0.086	06/04/20 16:28	
Cadmium	ug/L	<0.056	0.50	0.056	06/04/20 16:28	
Chromium	ug/L	<0.22	1.0	0.22	06/04/20 16:28	
Selenium	ug/L	<0.18	1.0	0.18	06/04/20 16:28	

LABORATORY CONTROL SAMPLE: 2668855

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.0	97	85-115	
Arsenic	ug/L	40	37.2	93	85-115	
Cadmium	ug/L	40	38.0	95	85-115	
Chromium	ug/L	40	37.4	94	85-115	
Selenium	ug/L	40	36.5	91	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668856 2668857

Parameter	Units	60337632001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.097	40	40	37.4	37.7	93	94	70-130	1	20	
Arsenic	ug/L	67.6	40	40	105	106	94	96	70-130	1	20	
Cadmium	ug/L	<0.056	40	40	35.2	35.1	88	88	70-130	0	20	
Chromium	ug/L	<0.22	40	40	36.3	35.8	90	89	70-130	1	20	
Selenium	ug/L	0.36J	40	40	34.4	35.5	85	88	70-130	3	20	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657302 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

METHOD BLANK: 2665666 | Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	05/29/20 09:16	

LABORATORY CONTROL SAMPLE: 2665667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	479	96	90-110	

SAMPLE DUPLICATE: 2665668

Parameter	Units	60337626002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2210	2590	16	10	D6

SAMPLE DUPLICATE: 2665669

Parameter	Units	60337632001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	926	929	0	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657360
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337951002, 60337951005, 60337951006, 60337951007, 60337951008, 60337951012

METHOD BLANK: 2665839
Matrix: Water
Associated Lab Samples: 60337951002, 60337951005, 60337951006, 60337951007, 60337951008, 60337951012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	06/01/20 15:56	

LABORATORY CONTROL SAMPLE: 2665840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	453	91	90-110	

SAMPLE DUPLICATE: 2665841

Parameter	Units	60337842003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	507	529	4	10	

SAMPLE DUPLICATE: 2665842

Parameter	Units	60338016003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	682	733	7	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 658046
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337951001, 60337951003, 60337951004, 60337951009, 60337951010, 60337951011, 60337951013

METHOD BLANK: 2668399
Matrix: Water
Associated Lab Samples: 60337951001, 60337951003, 60337951004, 60337951009, 60337951010, 60337951011, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	06/03/20 10:05	

LABORATORY CONTROL SAMPLE: 2668400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	484	97	90-110	

SAMPLE DUPLICATE: 2668401

Parameter	Units	60337922001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	569	578	2	10	

SAMPLE DUPLICATE: 2668402

Parameter	Units	60338101002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	298	303	2	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 658047
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632010, 60337632011

METHOD BLANK: 2668403
Matrix: Water
Associated Lab Samples: 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	06/03/20 13:04	

LABORATORY CONTROL SAMPLE: 2668404

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	479	96	90-110	

SAMPLE DUPLICATE: 2668405

Parameter	Units	60338216005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	<8.4		10	

SAMPLE DUPLICATE: 2668406

Parameter	Units	60338179002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	270	286	6	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 656381 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

METHOD BLANK: 2662154 | Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/22/20 13:52	

LABORATORY CONTROL SAMPLE: 2662155

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

SAMPLE DUPLICATE: 2662156

Parameter	Units	60337621001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	164000	159000	3	10	

SAMPLE DUPLICATE: 2662157

Parameter	Units	60337657007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1080	1060	2	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 656701 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337951002, 60337951005, 60337951006, 60337951007, 60337951008, 60337951012

METHOD BLANK: 2663661 Matrix: Water
Associated Lab Samples: 60337951002, 60337951005, 60337951006, 60337951007, 60337951008, 60337951012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/26/20 15:03	

LABORATORY CONTROL SAMPLE: 2663662

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	991	99	80-120	

SAMPLE DUPLICATE: 2663663

Parameter	Units	60337842003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1060	1010	5	10	

SAMPLE DUPLICATE: 2663664

Parameter	Units	60337984002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	470	469	0	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657218
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632010, 60337632011, 60337951001, 60337951003, 60337951004, 60337951009, 60337951010, 60337951011, 60337951013

METHOD BLANK: 2665305
Matrix: Water
Associated Lab Samples: 60337632010, 60337632011, 60337951001, 60337951003, 60337951004, 60337951009, 60337951010, 60337951011, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/28/20 13:23	

LABORATORY CONTROL SAMPLE: 2665306

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

SAMPLE DUPLICATE: 2665307

Parameter	Units	60337951001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	451	480	6	10	

SAMPLE DUPLICATE: 2665308

Parameter	Units	60337632010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	372	384	3	10	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657676 | 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: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

METHOD BLANK: 2667164 | Matrix: Water

Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/01/20 09:28	
Fluoride	mg/L	<0.075	0.20	0.075	06/01/20 09:28	
Sulfate	mg/L	<0.28	1.0	0.28	06/01/20 09:28	

METHOD BLANK: 2668611 | Matrix: Water

Associated Lab Samples: 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/02/20 09:28	
Fluoride	mg/L	<0.075	0.20	0.075	06/02/20 09:28	
Sulfate	mg/L	<0.28	1.0	0.28	06/02/20 09:28	

LABORATORY CONTROL SAMPLE: 2667165

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	5.2	103	90-110	

LABORATORY CONTROL SAMPLE: 2668612

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	97	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667166 2667167

Parameter	Units	60338583001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	41.2	50	50	102	95.5	123	109	80-120	7	15	M1
Fluoride	mg/L	0.84J	25	25	30.8	27.3	120	106	80-120	12	15	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667166 2667167

Parameter	Units	60338583001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	324	250	250	583	590	104	106	80-120	1	15	

MATRIX SPIKE SAMPLE: 2667168

Parameter	Units	60337951006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	30.4	25	56.7	105	80-120	
Fluoride	mg/L	0.31	2.5	2.9	105	80-120	
Sulfate	mg/L	19.3	25	45.4	104	80-120	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 657852
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632010, 60337632011

METHOD BLANK: 2667616 Matrix: Water
Associated Lab Samples: 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/02/20 09:34	
Fluoride	mg/L	<0.075	0.20	0.075	06/02/20 09:34	
Sulfate	mg/L	<0.28	1.0	0.28	06/02/20 09:34	

METHOD BLANK: 2669491 Matrix: Water
Associated Lab Samples: 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.47J	1.0	0.39	06/03/20 19:05	
Fluoride	mg/L	<0.075	0.20	0.075	06/03/20 19:05	
Sulfate	mg/L	<0.28	1.0	0.28	06/03/20 19:05	

METHOD BLANK: 2671044 Matrix: Water
Associated Lab Samples: 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/04/20 09:28	
Fluoride	mg/L	<0.075	0.20	0.075	06/04/20 09:28	
Sulfate	mg/L	<0.28	1.0	0.28	06/04/20 09:28	

METHOD BLANK: 2672173 Matrix: Water
Associated Lab Samples: 60337632010, 60337632011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/05/20 09:41	
Fluoride	mg/L	<0.075	0.20	0.075	06/05/20 09:41	
Sulfate	mg/L	<0.28	1.0	0.28	06/05/20 09:41	

LABORATORY CONTROL SAMPLE: 2667617

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	100	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

LABORATORY CONTROL SAMPLE: 2667617

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

LABORATORY CONTROL SAMPLE: 2669492

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.3	93	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 2671045

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	5.3	106	90-110	

LABORATORY CONTROL SAMPLE: 2672174

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	99	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.4	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2667618 2667619

Parameter	Units	60338397001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2850	1000	1000	3780	3760	94	91	80-120	1	15	
Fluoride	mg/L	6.2	125	125	153	129	118	98	80-120	17	15	R1
Sulfate	mg/L	193	500	500	726	730	107	107	80-120	1	15	

MATRIX SPIKE SAMPLE: 2667620

Parameter	Units	60338179002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	151	50	200	99	80-120	E
Fluoride	mg/L	ND	25	26.1	100	80-120	
Sulfate	mg/L	91.0	50	139	96	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 658105
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

METHOD BLANK: 2668595 Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/03/20 09:18	
Fluoride	mg/L	<0.075	0.20	0.075	06/03/20 09:18	
Sulfate	mg/L	<0.28	1.0	0.28	06/03/20 09:18	

METHOD BLANK: 2671028 Matrix: Water
Associated Lab Samples: 60337632001, 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	06/04/20 09:28	
Fluoride	mg/L	<0.075	0.20	0.075	06/04/20 09:28	
Sulfate	mg/L	<0.28	1.0	0.28	06/04/20 09:28	

LABORATORY CONTROL SAMPLE: 2668596

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

LABORATORY CONTROL SAMPLE: 2671029

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	5.3	106	90-110	

MATRIX SPIKE SAMPLE: 2668597

Parameter	Units	60338469003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.1	5	7.3	104	80-120	
Fluoride	mg/L	5.0	2.5	7.9	115	80-120	
Sulfate	mg/L	807	500	1360	111	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668598 2668599

Parameter	Units	60337632001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	38.7	25	25	67.8	67.5	116	115	80-120	0	15	
Fluoride	mg/L	0.37	2.5	2.5	3.1	3.1	108	108	80-120	0	15	
Sulfate	mg/L	45.5	25	25	74.8	74.4	117	115	80-120	1	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21S **Lab ID: 60337632001** Collected: 05/19/20 10:30 Received: 05/20/20 02:08 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	**0.680 ± 0.452 (0.551) C:NA T:89%**	pCi/L	06/15/20 15:34	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.30 ± 0.571 (0.970) C:74% T:86%**	pCi/L	06/15/20 13:54	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21I **Lab ID: 60337632002** Collected: 05/19/20 11:35 Received: 05/20/20 02:08 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 ± 0.351 (0.760)** **C:NA T:91%**	pCi/L	06/15/20 14:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.08 ± 0.635 (1.18)** **C:63% T:77%**	pCi/L	06/12/20 14:32	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P21D **Lab ID: 60337632003** Collected: 05/19/20 13:00 Received: 05/20/20 02:08 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	**0.647 ± 0.788 (1.30) C:NA T:87%**	pCi/L	06/15/20 14:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**2.45 ± 0.766 (0.986) C:71% T:79%**	pCi/L	06/12/20 14:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P22S **Lab ID: 60337632004** Collected: 05/19/20 14:30 Received: 05/20/20 02:08 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	**-0.250 ± 0.459 (1.04) C:NA T:93%**	pCi/L	06/15/20 14:53	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.589 ± 0.482 (0.966) C:68% T:88%**	pCi/L	06/12/20 14:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P22D **Lab ID: 60337632005** Collected: 05/19/20 14:34 Received: 05/20/20 02:08 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	**-0.0654 ± 0.385 (0.858) C:NA T:97%**	pCi/L	06/15/20 14:53	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.316 ± 0.577 (1.39) C:57% T:74%**	pCi/L	06/12/20 16:16	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-DUP-1 **Lab ID: 60337632006** Collected: 05/19/20 08:00 Received: 05/20/20 02:08 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	**0.0638 ± 0.516 (1.01) C:NA T:94%**	pCi/L	06/15/20 14:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.944 ± 0.652 (1.27) C:59% T:80%**	pCi/L	06/12/20 14:32	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-FB-1 **Lab ID: 60337632007** Collected: 05/19/20 13:10 Received: 05/20/20 02:08 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	**0.416 ± 0.694 (1.21) C:NA T:91%**	pCi/L	06/15/20 14:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.654 ± 0.555 (1.12) C:62% T:88%**	pCi/L	06/12/20 14:36	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-P21S-MS-1 **Lab ID: 60337632008** Collected: 05/19/20 10:30 Received: 05/20/20 02:08 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	**89.11 %REC +/- NA (NA) C:NA T:NA**	pCi/L	06/15/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**117.88 %REC ± NA (NA) C:NA T:NA**	pCi/L	06/15/20 13:54	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P05S **Lab ID: 60337632010** Collected: 05/22/20 09:55 Received: 05/23/20 05:08 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	**0.327 ± 0.342 (0.482) C:NA T:92%**	pCi/L	06/16/20 15:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.343 ± 0.424 (0.900) C:72% T:87%**	pCi/L	06/16/20 17:17	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P31S **Lab ID: 60337632011** Collected: 05/22/20 11:11 Received: 05/23/20 05:08 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	**0.670 ± 0.532 (0.691)** **C:NA T:83%**	pCi/L	06/16/20 15:32	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.315 ± 0.346 (0.861)** **C:74% T:95%**	pCi/L	06/16/20 17:17	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P10S **Lab ID: 60337951001** Collected: 05/21/20 11:23 Received: 05/22/20 02:25 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	**0.0675 ± 0.308 (0.497) C:NA T:92%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.400 ± 0.443 (0.925) C:73% T:85%**	pCi/L	06/16/20 17:17	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P16S **Lab ID: 60337951002** Collected: 05/20/20 10:10 Received: 05/22/20 02:25 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	**0.205 ± 0.356 (0.636)** **C:NA T:89%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.193 ± 0.439 (0.972)** **C:74% T:82%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17S **Lab ID: 60337951003** Collected: 05/21/20 10:45 Received: 05/22/20 02:25 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	**0.394 ± 0.409 (0.609) C:NA T:88%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.156 ± 0.464 (1.04) C:72% T:75%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17I **Lab ID: 60337951004** Collected: 05/21/20 11:45 Received: 05/22/20 02:25 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	**-0.0881 ± 0.457 (1.06) C:NA T:66%**	pCi/L	06/16/20 16:07	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.359 ± 0.675 (1.48) C:58% T:66%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P17D **Lab ID: 60337951005** Collected: 05/20/20 15:25 Received: 05/22/20 02:25 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	**0.669 ± 0.444 (0.202) C:NA T:90%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.305 ± 0.414 (0.886) C:75% T:85%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P19S **Lab ID: 60337951006** Collected: 05/20/20 11:40 Received: 05/22/20 02:25 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	**0.502 ± 0.393 (0.462)** **C:NA T:92%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.400 ± 0.399 (0.819)** **C:74% T:86%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P-19I **Lab ID: 60337951007** Collected: 05/20/20 12:30 Received: 05/22/20 02:25 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	**0.131 ± 0.300 (0.483)** **C:NA T:88%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.265 ± 0.615 (1.36)** **C:60% T:77%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P19D **Lab ID: 60337951008** Collected: 05/20/20 13:40 Received: 05/22/20 02:25 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	**0.284 ± 0.483 (0.853) C:NA T:82%**	pCi/L	06/16/20 15:56	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.00600 ± 0.353 (0.818) C:73% T:92%**	pCi/L	06/16/20 16:00	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P29S **Lab ID: 60337951009** Collected: 05/21/20 16:10 Received: 05/22/20 02:25 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	**0.465 ± 0.433 (0.570)** **C:NA T:88%**	pCi/L	06/16/20 16:20	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.222 ± 0.365 (0.793)** **C:76% T:82%**	pCi/L	06/16/20 17:18	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P29D **Lab ID: 60337951010** Collected: 05/21/20 13:25 Received: 05/22/20 02:25 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	**0.225 ± 0.343 (0.203)** **C:NA T:88%**	pCi/L	06/16/20 16:20	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.355 ± 0.363 (0.747)** **C:74% T:92%**	pCi/L	06/16/20 17:19	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-P30S **Lab ID: 60337951011** Collected: 05/21/20 13:17 Received: 05/22/20 02:25 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	**0.144 ± 0.329 (0.529)** **C:NA T:83%**	pCi/L	06/16/20 16:20	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.262 ± 0.354 (0.754)** **C:73% T:85%**	pCi/L	06/16/20 17:19	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-DUP-2 **Lab ID: 60337951012** Collected: 05/20/20 08:00 Received: 05/22/20 02:25 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	**0.0733 ± 0.335 (0.199) C:NA T:81%**	pCi/L	06/16/20 16:20	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.276 ± 0.380 (0.813) C:70% T:94%**	pCi/L	06/16/20 17:19	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Sample: R-CA-FB-2 **Lab ID: 60337951013** Collected: 05/21/20 13:50 Received: 05/22/20 02:25 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	**-0.203 ± 0.478 (1.07) C:NA T:90%**	pCi/L	06/16/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**-0.297 ± 0.367 (0.931) C:71% T:82%**	pCi/L	06/16/20 17:19	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 398559 | 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: 60337632010, 60337632011, 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

METHOD BLANK: 1930311 | Matrix: Water

Associated Lab Samples: 60337632010, 60337632011, 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0354 ± 0.360 (0.854) C:70% T:73%	pCi/L	06/16/20 16:01	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 399998
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60337632001, 60337632008

METHOD BLANK: 1937014
Matrix: Water
Associated Lab Samples: 60337632001, 60337632008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.00940 ± 0.396 (0.923) C:70% T:81%	pCi/L	06/15/20 14:12	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 398535 | 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: 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

METHOD BLANK: 1930261 | Matrix: Water
Associated Lab Samples: 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.718 ± 0.474 (0.906) C:67% T:83%	pCi/L	06/12/20 13:26	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 399997
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60337632001, 60337632008

METHOD BLANK: 1937013
Matrix: Water
Associated Lab Samples: 60337632001, 60337632008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0775 ± 0.402 (0.931) C:NA T:82%	pCi/L	06/19/20 13:56	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch:	398533	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: 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

METHOD BLANK: 1930259 Matrix: Water

Associated Lab Samples: 60337632002, 60337632003, 60337632004, 60337632005, 60337632006, 60337632007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.155 ± 0.336 (0.774) C:NA T:94%	pCi/L	06/15/20 14:16	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

QC Batch: 398557 | 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: 60337632010, 60337632011, 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

METHOD BLANK: 1930308 | Matrix: Water

Associated Lab Samples: 60337632010, 60337632011, 60337951001, 60337951002, 60337951003, 60337951004, 60337951005, 60337951006, 60337951007, 60337951008, 60337951009, 60337951010, 60337951011, 60337951012, 60337951013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.103 ± 0.351 (0.678) C:NA T:86%	pCi/L	06/16/20 15:32	

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QUALIFIERS

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

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.

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 (%)

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TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60337632001	**R-P21S**	EPA 200.7	658199	EPA 200.7	658295
60337632002	**R-P21I**	EPA 200.7	658199	EPA 200.7	658295
60337632003	**R-P21D**	EPA 200.7	658199	EPA 200.7	658295
60337632004	**R-P22S**	EPA 200.7	658199	EPA 200.7	658295
60337632005	**R-P22D**	EPA 200.7	658199	EPA 200.7	658295
60337632006	**R-CA-DUP-1**	EPA 200.7	658199	EPA 200.7	658295
60337632007	**R-CA-FB-1**	EPA 200.7	658199	EPA 200.7	658295
60337951001	**R-P10S**	EPA 200.7	657663	EPA 200.7	657710
60337951002	**R-P16S**	EPA 200.7	657663	EPA 200.7	657710
60337951003	**R-P17S**	EPA 200.7	657663	EPA 200.7	657710
60337951004	**R-P17I**	EPA 200.7	657663	EPA 200.7	657710
60337951005	**R-P17D**	EPA 200.7	657663	EPA 200.7	657710
60337951006	**R-P19S**	EPA 200.7	657663	EPA 200.7	657710
60337951007	**R-P-19I**	EPA 200.7	657663	EPA 200.7	657710
60337951008	**R-P19D**	EPA 200.7	657663	EPA 200.7	657710
60337951009	**R-P29S**	EPA 200.7	657663	EPA 200.7	657710
60337951010	**R-P29D**	EPA 200.7	657663	EPA 200.7	657710
60337951011	**R-P30S**	EPA 200.7	657663	EPA 200.7	657710
60337951012	**R-CA-DUP-2**	EPA 200.7	657663	EPA 200.7	657710
60337951013	**R-CA-FB-2**	EPA 200.7	657663	EPA 200.7	657710
60337632010	**R-P05S**	EPA 200.7	658199	EPA 200.7	658295
60337632011	**R-P31S**	EPA 200.7	658199	EPA 200.7	658295
60337632001	**R-P21S**	EPA 200.8	658198	EPA 200.8	658294
60337632002	**R-P21I**	EPA 200.8	658198	EPA 200.8	658294
60337632003	**R-P21D**	EPA 200.8	658198	EPA 200.8	658294
60337632004	**R-P22S**	EPA 200.8	658198	EPA 200.8	658294
60337632005	**R-P22D**	EPA 200.8	658198	EPA 200.8	658294
60337632006	**R-CA-DUP-1**	EPA 200.8	658198	EPA 200.8	658294
60337632007	**R-CA-FB-1**	EPA 200.8	658198	EPA 200.8	658294
60337951001	**R-P10S**	EPA 200.8	657667	EPA 200.8	657716
60337951002	**R-P16S**	EPA 200.8	657667	EPA 200.8	657716
60337951003	**R-P17S**	EPA 200.8	657667	EPA 200.8	657716
60337951004	**R-P17I**	EPA 200.8	657667	EPA 200.8	657716
60337951005	**R-P17D**	EPA 200.8	657667	EPA 200.8	657716
60337951006	**R-P19S**	EPA 200.8	657667	EPA 200.8	657716
60337951007	**R-P-19I**	EPA 200.8	657667	EPA 200.8	657716
60337951008	**R-P19D**	EPA 200.8	657667	EPA 200.8	657716
60337951009	**R-P29S**	EPA 200.8	657667	EPA 200.8	657716
60337951010	**R-P29D**	EPA 200.8	657667	EPA 200.8	657716
60337951011	**R-P30S**	EPA 200.8	657667	EPA 200.8	657716
60337951012	**R-CA-DUP-2**	EPA 200.8	657667	EPA 200.8	657716
60337951013	**R-CA-FB-2**	EPA 200.8	657667	EPA 200.8	657716
60337632010	**R-P05S**	EPA 200.8	658198	EPA 200.8	658294
60337632011	**R-P31S**	EPA 200.8	658198	EPA 200.8	658294
60337632001	**R-P21S**	EPA 903.1	399997		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60337632002	**R-P21I**	EPA 903.1	398533		
60337632003	**R-P21D**	EPA 903.1	398533		
60337632004	**R-P22S**	EPA 903.1	398533		
60337632005	**R-P22D**	EPA 903.1	398533		
60337632006	**R-CA-DUP-1**	EPA 903.1	398533		
60337632007	**R-CA-FB-1**	EPA 903.1	398533		
60337632008	**R-CA-P21S-MS-1**	EPA 903.1	399997		
60337951001	**R-P10S**	EPA 903.1	398557		
60337951002	**R-P16S**	EPA 903.1	398557		
60337951003	**R-P17S**	EPA 903.1	398557		
60337951004	**R-P17I**	EPA 903.1	398557		
60337951005	**R-P17D**	EPA 903.1	398557		
60337951006	**R-P19S**	EPA 903.1	398557		
60337951007	**R-P-19I**	EPA 903.1	398557		
60337951008	**R-P19D**	EPA 903.1	398557		
60337951009	**R-P29S**	EPA 903.1	398557		
60337951010	**R-P29D**	EPA 903.1	398557		
60337951011	**R-P30S**	EPA 903.1	398557		
60337951012	**R-CA-DUP-2**	EPA 903.1	398557		
60337951013	**R-CA-FB-2**	EPA 903.1	398557		
60337632010	**R-P05S**	EPA 903.1	398557		
60337632011	**R-P31S**	EPA 903.1	398557		
60337632001	**R-P21S**	EPA 904.0	399998		
60337632002	**R-P21I**	EPA 904.0	398535		
60337632003	**R-P21D**	EPA 904.0	398535		
60337632004	**R-P22S**	EPA 904.0	398535		
60337632005	**R-P22D**	EPA 904.0	398535		
60337632006	**R-CA-DUP-1**	EPA 904.0	398535		
60337632007	**R-CA-FB-1**	EPA 904.0	398535		
60337632008	**R-CA-P21S-MS-1**	EPA 904.0	399998		
60337951001	**R-P10S**	EPA 904.0	398559		
60337951002	**R-P16S**	EPA 904.0	398559		
60337951003	**R-P17S**	EPA 904.0	398559		
60337951004	**R-P17I**	EPA 904.0	398559		
60337951005	**R-P17D**	EPA 904.0	398559		
60337951006	**R-P19S**	EPA 904.0	398559		
60337951007	**R-P-19I**	EPA 904.0	398559		
60337951008	**R-P19D**	EPA 904.0	398559		
60337951009	**R-P29S**	EPA 904.0	398559		
60337951010	**R-P29D**	EPA 904.0	398559		
60337951011	**R-P30S**	EPA 904.0	398559		
60337951012	**R-CA-DUP-2**	EPA 904.0	398559		
60337951013	**R-CA-FB-2**	EPA 904.0	398559		
60337632010	**R-P05S**	EPA 904.0	398559		
60337632011	**R-P31S**	EPA 904.0	398559		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60337632001	**R-P21S**	SM 2320B	657302		
60337632002	**R-P21I**	SM 2320B	657302		
60337632003	**R-P21D**	SM 2320B	657302		
60337632004	**R-P22S**	SM 2320B	657302		
60337632005	**R-P22D**	SM 2320B	657302		
60337632006	**R-CA-DUP-1**	SM 2320B	657302		
60337632007	**R-CA-FB-1**	SM 2320B	657302		
60337951001	**R-P10S**	SM 2320B	658046		
60337951002	**R-P16S**	SM 2320B	657360		
60337951003	**R-P17S**	SM 2320B	658046		
60337951004	**R-P17I**	SM 2320B	658046		
60337951005	**R-P17D**	SM 2320B	657360		
60337951006	**R-P19S**	SM 2320B	657360		
60337951007	**R-P-19I**	SM 2320B	657360		
60337951008	**R-P19D**	SM 2320B	657360		
60337951009	**R-P29S**	SM 2320B	658046		
60337951010	**R-P29D**	SM 2320B	658046		
60337951011	**R-P30S**	SM 2320B	658046		
60337951012	**R-CA-DUP-2**	SM 2320B	657360		
60337951013	**R-CA-FB-2**	SM 2320B	658046		
60337632010	**R-P05S**	SM 2320B	658047		
60337632011	**R-P31S**	SM 2320B	658047		
60337632001	**R-P21S**	SM 2540C	656381		
60337632002	**R-P21I**	SM 2540C	656381		
60337632003	**R-P21D**	SM 2540C	656381		
60337632004	**R-P22S**	SM 2540C	656381		
60337632005	**R-P22D**	SM 2540C	656381		
60337632006	**R-CA-DUP-1**	SM 2540C	656381		
60337632007	**R-CA-FB-1**	SM 2540C	656381		
60337951001	**R-P10S**	SM 2540C	657218		
60337951002	**R-P16S**	SM 2540C	656701		
60337951003	**R-P17S**	SM 2540C	657218		
60337951004	**R-P17I**	SM 2540C	657218		
60337951005	**R-P17D**	SM 2540C	656701		
60337951006	**R-P19S**	SM 2540C	656701		
60337951007	**R-P-19I**	SM 2540C	656701		
60337951008	**R-P19D**	SM 2540C	656701		
60337951009	**R-P29S**	SM 2540C	657218		
60337951010	**R-P29D**	SM 2540C	657218		
60337951011	**R-P30S**	SM 2540C	657218		
60337951012	**R-CA-DUP-2**	SM 2540C	656701		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND EC RCPA-CA
Pace Project No.: 60337632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60337951013	**R-CA-FB-2**	SM 2540C	657218		
60337632010	**R-P05S**	SM 2540C	657218		
60337632011	**R-P31S**	SM 2540C	657218		
60337632001	**R-P21S**	EPA 300.0	658105		
60337632002	**R-P21I**	EPA 300.0	658105		
60337632003	**R-P21D**	EPA 300.0	658105		
60337632004	**R-P22S**	EPA 300.0	658105		
60337632005	**R-P22D**	EPA 300.0	658105		
60337632006	**R-CA-DUP-1**	EPA 300.0	658105		
60337632007	**R-CA-FB-1**	EPA 300.0	658105		
60337951001	**R-P10S**	EPA 300.0	657676		
60337951002	**R-P16S**	EPA 300.0	657676		
60337951003	**R-P17S**	EPA 300.0	657676		
60337951004	**R-P17I**	EPA 300.0	657676		
60337951005	**R-P17D**	EPA 300.0	657676		
60337951006	**R-P19S**	EPA 300.0	657676		
60337951007	**R-P-19I**	EPA 300.0	657676		
60337951008	**R-P19D**	EPA 300.0	657676		
60337951009	**R-P29S**	EPA 300.0	657676		
60337951010	**R-P29D**	EPA 300.0	657676		
60337951011	**R-P30S**	EPA 300.0	657676		
60337951012	**R-CA-DUP-2**	EPA 300.0	657676		
60337951013	**R-CA-FB-2**	EPA 300.0	657676		
60337632010	**R-P05S**	EPA 300.0	657852		
60337632011	**R-P31S**	EPA 300.0	657852		

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Sample Condition Upon Receipt

WO# : 60337632

60337632

Client Name: Golder

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

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

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

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☒ Tpl C

Thermometer Used: T299 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 16.8 Corr. Factor +0.1 Corrected 16.9

Temperature should be above freezing to 6°C 1.3 1.4

Date and initials of person examining contents: 5-20-2020

Chain of Custody present:	☒Yes ☐No ☐N/A	cooler out of temp had only 1 Radium
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # 602173	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Jami Church Date: 5/20/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS		Appendix IV metals*	Fluoride	Radium 226	Radium 228		Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Analysis Test ↓																	N	N	N		N	N	N	N		N	N	N		
1	R-P22S	WT	G			5/19/20	1430		4	1		3						/	/	/		/	/	/	/		/	/	/		
2	R-P22D	WT	G			1	1434		1	1		1						/	/	/		/	/	/	/		/	/	/		
3	R-P29S	WT	G																												
4	R-P29D	WT	G																												
5	R-P30S	WT	G																												
6	R-P31S	WT	G																												
7	R-CA-DUP-1	WT	G			5/19/20	—		4	1		3						/	/	/		/	/	/	/		/	/	/		
8	R-CA-DUP-2	WT	G																												
9	R-CA-FB-1	WT	G			5/19/20	1310		4	1		3						/	/	/		/	/	/	/		/	/	/		
10	R-CA-FB-2	WT	G																												
11	R-CA-MS-1	WT	G			5/19/20	1630		4	1		3						/	/	/		/	/	/	/		/	/	/		
12	R-CA-MSD-2	WT	G			1	1		1	1		1						/	/	/		/	/	/	/		/	/	/		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
**- App IV Metals - EPA 200.7 - Ba, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se	Kathryne Bartels/Golder	5/19/20	1648	[illegible]	5-20-20	0808	16.9	N	Y	Y
**Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Kathryne Bartels				
SIGNATURE of SAMPLER:	[signature] DATE Signed (MM/DD/YY): 5/19/20				

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

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CHAIN-OF-CUSTODY / Analytical Request Document

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	Ballwin, MO 63021
Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS		Appendix IV metals*	Fluoride	Radium 226	Radium 228		Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Analysis Test ↓																	Y/N ↓	N	N	N		N	N	N	N		N	N	N	
1	R-P05S	WT	G																												
2	R-P10S	WT	G																												
3	R-P16S	WT	G																												
4	R-P17S	WT	G																												
5	R-P17I	WT	G																												
6	R-P17D	WT	G																												
7	R-P19S	WT	G																												
8	R-P-19I	WT	G																												
9	R-P19D	WT	G																												
10	R-P21S	WT	G			~~1035~~	1030		4	1		3							✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
11	R-P21I	WT	G			5/19/20	1135																								
12	R-P21D	WT	G				1360																								

60357632

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	Katherine Bartels/Golder	5/19/20	1648	Angie McCu	5/19	1650				
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo; 200.8 Metals - Sb, As, Cd, Cr, Se, Tl	Angie McCu	5/19	1650	Lizzy Plas	5-20-20	0208	16.9	N	Y	Y
							1.9	Y	↓	↓

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Katherine Bartels

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/19/20

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

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Sample Condition Upon Receipt

WO# : 60337632

60337632

Client Name: Cooper Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 21.2 **Corr. Factor** -0.5 **Corrected** 20.7, 0.0

Date and initials of person examining contents: 05.23.20 MCK

Temperature should be above freezing to 6°C 0.5

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot #1003173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Jami Church 5/26/20

Project Manager Review: _____ Date _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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Email To:	jeffrey_ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES / GROUND WATER / DRINKING WATER
UST / RCRA / OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS		Appendix IV metals*	Fluoride	Radium 226	Radium 228		Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 40337639
	Analysis Test																	Y/N	N	N	N		N	N	N	N		N	N	N		
1	R-P05S	WT	G			5/22/20	0955		4	1		3							X	X	X		X	X	X	X		X	X	X		010
2	R-P10S	WT	G																													
3	R-P16S	WT	G																													
4	R-P17S	WT	G																													
5	R-P17I	WT	G																													
6	R-P17D	WT	G																													
7	R-P19S	WT	G																													
8	R-P-19I	WT	G																													
9	R-P19D	WT	G																													
10	R-P21S	WT	G																													
11	R-P21I	WT	G																													
12	R-P21D	WT	G																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	20.7	SAMPLE CONDITIONS		
App III and Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert	5/22/20	1455	MKeller/Pace	5/23/20	0508	21.2	N	Y	Y
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl							20	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert

DATE Signed (MM/DD/YY): 5/22/2020

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

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

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS		Appendix IV metals*	Fluoride	Radium 226	Radium 228		Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (60337632)
	Analysis Test																	Y/N	N	N	N		N	N	N	N		N	N	N		
1	R-P22S	WT	G																													
2	R-P22D	WT	G																													
3	R-P29S	WT	G																													
4	R-P29D	WT	G																													
5	R-P30S	WT	G																													
6	R-P31S	WT	G			5/22/20	1111		4	1		3							X	X	X		X	X	X	X		X	X	X		011
7	R-CA-DUP-1	WT	G																													
8	R-CA-DUP-2	WT	G																													
9	R-CA-FB-1	WT	G																													
10	R-CA-FB-2	WT	G																													
11	R-CA-MS-1	WT	G																													
12	R-CA-MSD-2	WT	G																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
**- App IV Metals - EPA 200.7 - Ba, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se	Brendan Talbert	5/22/20	1455	MKeller/Pace	5/23/20	0508	20.7	N	Y	Y
**Cat/An Metals - EPA 200.7 Fe, Mg, Mn, K, Na, Ca							0.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/22/2020

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

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

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www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60337951

60337951

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 ☑ 3PL C

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

Cooler Temperature (°C): **As-read** 15.5, 10.7 **Corr. Factor** -0.5 **Corrected** 15.0, 10.2, 2.1, 1.1

Temperature should be above freezing to 6°C 2.6, 1.6

Date and initials of person examining contents: 05/22/20 MK

Chain of Custody present:	☑Yes ☐No ☐N/A	All containers for Radium were received in coolers one & two.
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	tests marked for R-P22D
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	but no containers recieved
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☑No ☐N/A	Did not receive containers labeled RP17I but did receive containers labeled R-P-19I with matching sample time.
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2, NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution _____

Project Manager Review: Jami Church 5/26/20 Date _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS	Appendix IV metals*	Fluoride	Radium 226	Radium 228	Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N		N	N	N		N	N	N	60337951
1	R-P05S	WT	G																										
2	R-P10S	WT	G			5/21/20	1123		4	1		3							✓	✓	✓		✓	✓	✓		✓	✓	✓	
3	R-P16S	WT	G			5/20/20	1010																						
4	R-P17S	WT	G			5/21/20	1045																						
5	R-P17I	WT	G			5/21/20	1145																						
6	R-P17D	WT	G			5/20/20	1525																						
7	R-P19S	WT	G			5/20/20	1140																						
8	R-P-19I	WT	G			5/20/20	1230																						
9	R-P19D	WT	G			5/21/20	1340																						
10	R-P21S	WT	G																										
11	R-P21I	WT	G																										
12	R-P21D	WT	G																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App III and Cat/An Metals - EPA 200.7 - Fe, Mg, Mn, K, Na, Ca, B	Katherine Bartels/Golder	5/21/20	1810	M Keller/Pace	5/22/20	0225	15.0	~~Y~~ N	Y	Y
**- App IV Metals - EPA 200.7 - Ba, Be, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se, Tl							16.0	~~Y~~ N	Y	Y
							21	Y	Y	Y
							1.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Katherine Bartels

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/21/20

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

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

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CHAIN-OF-CUSTODY / Analytical Request Document

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Address:	13515 Barrett Parkway Dr., Ste 260
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Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

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Report To:	Jeffrey Ingram
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Purchase Order No.:	COC #6
Project Name:	Ameren Rush Island EC RCPA-CA
Project Number:	153140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/GRAB DATE	COLLECTED Composite End/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): App. III Metals 200.7 B,Ca	Chloride/Fluoride/Sulfate	TDS		Appendix IV metals*	Fluoride	Radium 226	Radium 228		Cat/An Metals**	Alkalinity	Chloride/Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	R-P22S	WT	G																											
2	R-P22D	WT	G															✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
3	R-P29S	WT	G			5/21/20	1610		4	~~1~~		3																		
4	R-P29D	WT	G			5/21/20	1325																							
5	R-P30S	WT	G			5/21/20	1317																							
6	R-P31S	WT	G																											
7	R-CA-DUP-1	WT	G																											
8	R-CA-DUP-2	WT	G			5/20/20	—		4	~~1~~		3						✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
9	R-CA-FB-1	WT	G																											
10	R-CA-FB-2	WT	G			5/21/20	1350		4	~~1~~		3						✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
11	R-CA-MS-1	WT	G																											
12	R-CA-MSD-2	WT	G																											

L033795

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
**- App IV Metals - EPA 200.7 - Ba, Co, Pb, Li, Mo 200.8 Metals - Sb, As, Cd, Cr, Se	Katherine Bartels/Golder	5/21/20	1810	Mkener/Pace	5/22/20	~~0800~~
**Cat/An Metals - EPA 200.7: Fe, Mg, Mn, K, Na, Ca						0225

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	15.0	N	Y	Y
	16.2	N	Y	Y
	2.1	Y	Y	Y
	1.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE: Katherine Bartels

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/21/20

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

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

MEMORANDUM

DATE July 1, 2020

Project No. 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA – CORRECTIVE ACTION SAMPLING MAY 2020 - DATA PACKAGE 60337632

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren- Rush Island - RCPA-CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 06/30/2020

Laboratory: Pace Analytical
SDG #: 60337632
Analytical Method (type and no.): EPA 200.7/200.8 (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 R-P21S, R-P21I, R-P21D, R-P22S, R-P22D, R-CA-DUP-1, R-CA-FB-1, R-CA-P21S-MS-1, R-P05S, R-P31S, R-P10S, R-P16S, R-P17S, R-P17I, R-P17D, R-P19S, R-P19I, R-P19D, R-P29S, R-P29D, R-P30S, R-CA-DUP-2, R-CA-FB-2

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			05/19 - 05/22/2020
b) Sampling team indicated?				
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			R-CA-DUP-1 @ R-P21I R-CA-DUP-2 @ R-P16S
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?		x		See Notes

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

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

Comments/Notes:

COC: The "Requested Analysis" section of the chain from 5/21/2020 was filled out for R-P22D but no containers were received, a previous COC indicates this sample was collected and shipped 5/19/2020. The lab did not receive containers labeled R-P17I but did receive containers labeled R-P-19I with matching sample time. Coolers out of temp had only radium.

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

MB: 2668860: Calcium (34.3 J), Sodium (275 J), associated samples -32001 through -32007, -32010 and -32011

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB: Chloride (0.47 J), associated samples -32010, -32011, detections in samples > RL, no qualification necessary.

R-CA-FB-1 @ R-P21D: Calcium (50.2 J), Sodium (363 J), Cadmium (0.070 J)

R-CA-FB-2 @ R-P30S: Calcium (51.4 J), Sodium (129 J), no qualification necessary, sample results > 10x blank results

DUP: R-CA-DUP-1: RPD exceeds limit (>20%) for Chromium

Lab DUP: 2665668: RPD exceeds limit (>10%) for Alkalinity, associated sample -26002 (unrelated sample)

MS/MSD: 2668862, 2668863: MSD % recovery low for Calcium, associated sample -32001

2667166, 2667167: MS % recovery high for Chloride, associated sample -83001 (unrelated sample)

2667618, 2667619: MS/MSD RPD exceeds limit (>15%) for Fluoride, associated sample -97001 (unrelated sample)

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-CA-FB-1	Calcium	200	U	Detected in method blank
R-CA-FB-1	Sodium	500	U	"
R-P21D	Cadmium	0.50	U	Detected in field blank
R-P21I	Chromium	0.31	J	DUP RPD exceeds limit
R-CA-DUP-1	"	0.54	J	"
R-P21S	Calcium	292000	J	MSD % recovery low

Signature: Ann Mullfarth

Date: 06/30/2020

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

July 08, 2020

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

RE: Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on June 24, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

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

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60340836001	**R-P-16S**	Water	06/23/20 12:55	06/24/20 04:45

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60340836001	**R-P-16S**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

Sample: R-P-16S **Lab ID: 60340836001** Collected: 06/23/20 12:55 Received: 06/24/20 04:45 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								
Molybdenum	**31.6**	ug/L	20.0	1.7	1	07/06/20 16:51	07/07/20 13:07	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.6**	ug/L	1.0	0.086	1	07/07/20 15:17	07/08/20 12:45	7440-38-2	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

QC Batch: 663588
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60340836001

METHOD BLANK: 2689906 Matrix: Water
Associated Lab Samples: 60340836001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	ug/L	<1.7	20.0	1.7	07/07/20 12:19	

LABORATORY CONTROL SAMPLE: 2689907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	1000	1020	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2689908 2689909

Parameter	Units	60340569001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	<1.7	1000	1000	1000	1030	100	103	70-130	3	20	

MATRIX SPIKE SAMPLE: 2689910

Parameter	Units	60340199024 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	<1.7	1000	1020	102	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

QC Batch: 663801
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60340836001

METHOD BLANK: 2690401 Matrix: Water
Associated Lab Samples: 60340836001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.086	1.0	0.086	07/08/20 12:04	

LABORATORY CONTROL SAMPLE: 2690402

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.9	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2690403 2690404

Parameter	Units	60340569001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	2.4	80	80	79.1	82.7	96	100	70-130	4	20	

MATRIX SPIKE SAMPLE: 2690405

Parameter	Units	60340836001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1.6	40	42.0	101	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60340836

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60340836001	**R-P-16S**	EPA 200.7	663588	EPA 200.7	663739
60340836001	**R-P-16S**	EPA 200.8	663801	EPA 200.8	663983

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Sample Condition Upon Receipt

WO# : 60340836

60340836

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 0.0 **Corr. Factor** -0.5 **Corrected** 0.1

Date and initials of person examining contents: 062420 WK

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 6032960	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jami Church Date: 6/24/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren
Project Number:	155140602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES / GROUND WATER / DRINKING WATER
UST / RCRA / OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	~~200.7 Boron~~	~~200.7 Calcium~~	~~Chloride~~	~~Fluoride~~	~~Sulfate~~	~~TDS~~	200.8 Arsenic	200.8 molybdenum					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N	N									
1	R-P-165	WT	G			6/23/20	1255		1			1													X	X							60340836
2		WT	G																														
3		WT	G																														
4		WT	G																														
5		WT	G																														
6		WT	G																														
7		WT	G																														
8		WT	G																														
9		WT	G																														
10		WT	G																														
11		WT	G																														
12		WT	G																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Brendan Talbert / Golder	6/23/20	1500	MKeller / Pace	6/24/20	0445	0.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Brendan Talbert		
SIGNATURE of SAMPLER:	B Talbert	DATE Signed (MM/DD/YY):	06/23/2020

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

MEMORANDUM

DATE July 8, 2020

Project No. 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA – ADDITIONAL CORRECTIVE ACTION SAMPLING JUNE 2020 - DATA PACKAGE 60340836

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

- None.

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA-CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 07/08/2020

Laboratory: Pace Analytical
SDG #: 60340836
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-P-16S

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

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	x			06/23/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?		x		
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

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

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

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

Comments/Notes:

None.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Ann Muehlfeath _____ Date: 07/08/2020

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July 30, 2020

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

RE: Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on July 24, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

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

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SAMPLE SUMMARY

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60343593001	**R-P16S**	Water	07/22/20 12:57	07/24/20 04:23
60343593002	**R-P10S**	Water	07/22/20 11:13	07/24/20 04:23
60343593003	**R-P30S**	Water	07/22/20 15:05	07/24/20 04:23
60343593004	**R-P31S**	Water	07/22/20 13:25	07/24/20 04:23
60343593005	**R-FB-1**	Water	07/22/20 13:30	07/24/20 04:23
60343593006	**R-CA-DUP-1**	Water	07/22/20 08:00	07/24/20 04:23

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SAMPLE ANALYTE COUNT

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60343593001	**R-P16S**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60343593002	**R-P10S**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60343593003	**R-P30S**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60343593004	**R-P31S**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60343593005	**R-FB-1**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60343593006	**R-CA-DUP-1**	EPA 200.7	JDE	1	PASI-K
		EPA 200.8	JGP	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-P16S **Lab ID: 60343593001** Collected: 07/22/20 12:57 Received: 07/24/20 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								
Molybdenum	**31.0**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:18	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.7**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:46	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-P10S **Lab ID: 60343593002** Collected: 07/22/20 11:13 Received: 07/24/20 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								
Molybdenum	**111**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:21	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**5.7**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:47	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-P30S **Lab ID: 60343593003** Collected: 07/22/20 15:05 Received: 07/24/20 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								
Molybdenum	**2.1J**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:28	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.4**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:51	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-P31S **Lab ID: 60343593004** Collected: 07/22/20 13:25 Received: 07/24/20 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								
Molybdenum	**7.7J**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:31	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**19.4**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:52	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-FB-1 **Lab ID: 60343593005** Collected: 07/22/20 13:30 Received: 07/24/20 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								
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:34	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**<0.086**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:57	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Sample: R-CA-DUP-1 **Lab ID: 60343593006** Collected: 07/22/20 08:00 Received: 07/24/20 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								
Molybdenum	**31.2**	ug/L	20.0	1.7	1	07/27/20 14:00	07/28/20 13:36	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.8**	ug/L	1.0	0.086	1	07/28/20 09:16	07/29/20 15:54	7440-38-2	

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

QC Batch: 667768 | 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: 60343593001, 60343593002, 60343593003, 60343593004, 60343593005, 60343593006

METHOD BLANK: 2704386 Matrix: Water
Associated Lab Samples: 60343593001, 60343593002, 60343593003, 60343593004, 60343593005, 60343593006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	ug/L	<1.7	20.0	1.7	07/28/20 13:08	

LABORATORY CONTROL SAMPLE: 2704387

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	1000	1060	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2704388 2704389

Parameter	Units	60343593002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	111	1000	1000	1170	1210	106	109	70-130	3	20	

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

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QUALITY CONTROL DATA

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

QC Batch: 667866 | 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: 60343593001, 60343593002, 60343593003, 60343593004, 60343593005, 60343593006

METHOD BLANK: 2704584 | Matrix: Water
Associated Lab Samples: 60343593001, 60343593002, 60343593003, 60343593004, 60343593005, 60343593006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.086	1.0	0.086	07/29/20 15:44	

LABORATORY CONTROL SAMPLE: 2704585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	41.2	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2704586 2704587

Parameter	Units	60343593002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	5.7	40	40	48.1	48.4	106	107	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RUSH ISLAND ENERGY CTR
Pace Project No.: 60343593

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60343593001	**R-P16S**	EPA 200.7	667768	EPA 200.7	667831
60343593002	**R-P10S**	EPA 200.7	667768	EPA 200.7	667831
60343593003	**R-P30S**	EPA 200.7	667768	EPA 200.7	667831
60343593004	**R-P31S**	EPA 200.7	667768	EPA 200.7	667831
60343593005	**R-FB-1**	EPA 200.7	667768	EPA 200.7	667831
60343593006	**R-CA-DUP-1**	EPA 200.7	667768	EPA 200.7	667831
60343593001	**R-P16S**	EPA 200.8	667866	EPA 200.8	668035
60343593002	**R-P10S**	EPA 200.8	667866	EPA 200.8	668035
60343593003	**R-P30S**	EPA 200.8	667866	EPA 200.8	668035
60343593004	**R-P31S**	EPA 200.8	667866	EPA 200.8	668035
60343593005	**R-FB-1**	EPA 200.8	667866	EPA 200.8	668035
60343593006	**R-CA-DUP-1**	EPA 200.8	667866	EPA 200.8	668035

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Sample Condition Upon Receipt

WO# : 60343593

60343593

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 ☒ Ziplc

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

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

Date and initials of person examining contents: 7.24.2020

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	NO Dates on COC
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	containers read 7/22
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603173	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jami Church 7/27/230 Date: _____

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	1531406002.0002A
Project Name:	Ameren
Project Number:	1531406002.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/GRAB DATE	COLLECTED Composite End/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Molybdenum	Arsenic	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	R-P16S	WT	G				1257		1			1						X	X		60743593
2	R-P10S	WT	G				1113														
3	R-P30S	WT	G				1505														
4	R-P31S	WT	G				1325														
5	R-FB-1	WT	G				1330														
6	R-CA-MS-1	WT	G				1113														
7	R-CA-MSD-1	WT	G				1113														
8	R-CA-DUP-1	WT	G				—														
9		WT	G																		
10		WT	G																		
11		WT	G																		
12		WT	G																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
MS/MSD taken @ R-P10S	[signature] Golder	7/23/20	1315	[signature]	7.24.20	0422	2.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/23/20

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

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

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

MEMORANDUM

DATE July 31, 2020

Project No. 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA – ADDITIONAL CORRECTIVE ACTION SAMPLING JULY 2020 - DATA PACKAGE 60343593

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

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

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

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA-CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 07/31/2020

Laboratory: Pace Analytical
SDG #: 60343593
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals)
Matrix: ☐ Air ☐ Soil/Sed. ☐ Water ☐ Waste ☐
Sample Names R-P16S, R-P10S, R-P30S, R-P31S, R-FB-1, R-CA-DUP-1

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

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	x			07/22/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	x	☐	
b) Were analytes detected in the field blank(s)?	☐	x	☐	R-FB-1 @ R-P31S
c) Were analytes detected in the equipment blank(s)?	☐	☐	x	
d) Were analytes detected in the trip blank(s)?	☐	☐	x	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x	☐	☐	R-CA-DUP-1 @ R-P16S
b) Were field dup. precision criteria met (note RPD)?	x	☐	☐	Max RPD: 5.71% (<20%)
c) Were lab duplicates analyzed (note original and duplicate samples)?	☐	☐	x	
d) Were lab dup. precision criteria met (note RPD)?	☐	☐	x	

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

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

Comments/Notes:

No dates on COC, lab used dates on containers (07/22/2020).

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Ann Muehlforth _____ Date: 07/31/2020

Pace Analytical Services, LLC
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September 02, 2020

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

RE: Project: AMEREN-RIEC
Pace Project No.: 60346692

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on August 27, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN-RIEC
Pace Project No.: 60346692

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

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SAMPLE SUMMARY

Project: AMEREN-RIEC
Pace Project No.: 60346692

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60346692001	**R-P10S**	Water	08/25/20 13:45	08/27/20 04:26
60346692002	**R-P16S**	Water	08/25/20 14:20	08/27/20 04:26
60346692003	**R-DUP-1**	Water	08/25/20 00:00	08/27/20 04:26
60346692004	**R-P30S**	Water	08/26/20 09:10	08/27/20 04:26
60346692005	**R-FB-1**	Water	08/26/20 09:06	08/27/20 04:26

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SAMPLE ANALYTE COUNT

Project: AMEREN-RIEC
Pace Project No.: 60346692

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60346692001	**R-P10S**	EPA 200.7	TDS	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60346692002	**R-P16S**	EPA 200.7	TDS	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60346692003	**R-DUP-1**	EPA 200.7	TDS	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60346692004	**R-P30S**	EPA 200.7	TDS	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60346692005	**R-FB-1**	EPA 200.7	TDS	1	PASI-K
		EPA 200.8	JGP	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN-RIEC
Pace Project No.: 60346692

Sample: R-P10S **Lab ID: 60346692001** Collected: 08/25/20 13:45 Received: 08/27/20 04:26 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								
Molybdenum	**117**	ug/L	20.0	1.7	1	08/31/20 15:38	09/01/20 19:25	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**7.4**	ug/L	1.0	0.086	1	08/31/20 15:40	09/02/20 12:45	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RIEC
Pace Project No.: 60346692

Sample: R-P16S **Lab ID: 60346692002** Collected: 08/25/20 14:20 Received: 08/27/20 04:26 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								
Molybdenum	**18.9J**	ug/L	20.0	1.7	1	08/31/20 15:38	09/01/20 19:32	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.7**	ug/L	1.0	0.086	1	08/31/20 15:40	09/02/20 12:36	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RIEC
Pace Project No.: 60346692

Sample: R-DUP-1 **Lab ID: 60346692003** Collected: 08/25/20 00:00 Received: 08/27/20 04:26 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								
Molybdenum	**18.0J**	ug/L	20.0	1.7	1	08/31/20 15:38	09/01/20 19:42	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.7**	ug/L	1.0	0.086	1	08/31/20 15:40	09/02/20 12:38	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RIEC
Pace Project No.: 60346692

Sample: R-P30S **Lab ID: 60346692004** Collected: 08/26/20 09:10 Received: 08/27/20 04:26 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								
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	08/31/20 15:38	09/01/20 19:45	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**2.0**	ug/L	1.0	0.086	1	08/31/20 15:40	09/02/20 12:40	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RIEC
Pace Project No.: 60346692

Sample: R-FB-1 **Lab ID: 60346692005** Collected: 08/26/20 09:06 Received: 08/27/20 04:26 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								
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	08/31/20 15:38	09/01/20 19:47	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**<0.086**	ug/L	1.0	0.086	1	08/31/20 15:40	09/02/20 12:34	7440-38-2	

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QUALITY CONTROL DATA

Project: AMEREN-RIEC
Pace Project No.: 60346692

QC Batch: 674313
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60346692001, 60346692002, 60346692003, 60346692004, 60346692005

METHOD BLANK: 2727758 Matrix: Water
Associated Lab Samples: 60346692001, 60346692002, 60346692003, 60346692004, 60346692005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	ug/L	<1.7	20.0	1.7	09/01/20 18:43	

LABORATORY CONTROL SAMPLE: 2727759

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	1000	1040	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2727760 2727761

Parameter	Units	60346687006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	2.3J	1000	1000	986	1040	98	104	70-130	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2727762 2727763

Parameter	Units	60346692001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	117	1000	1000	1170	1150	105	103	70-130	2	20	

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

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN-RIEC
Pace Project No.: 60346692

QC Batch: 674311
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60346692001, 60346692002, 60346692003, 60346692004, 60346692005

METHOD BLANK: 2727749
Matrix: Water
Associated Lab Samples: 60346692001, 60346692002, 60346692003, 60346692004, 60346692005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.086	1.0	0.086	09/02/20 11:39	

LABORATORY CONTROL SAMPLE: 2727750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	81.2	101	85-115	

MATRIX SPIKE SAMPLE: 2727751

Parameter	Units	60346077001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	40	40.6	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2727901 2727902

Parameter	Units	60346692001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	7.4	40	40	47.4	48.5	100	103	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: AMEREN-RIEC
Pace Project No.: 60346692

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN-RIEC
Pace Project No.: 60346692

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60346692001	**R-P10S**	EPA 200.7	674313	EPA 200.7	674469
60346692002	**R-P16S**	EPA 200.7	674313	EPA 200.7	674469
60346692003	**R-DUP-1**	EPA 200.7	674313	EPA 200.7	674469
60346692004	**R-P30S**	EPA 200.7	674313	EPA 200.7	674469
60346692005	**R-FB-1**	EPA 200.7	674313	EPA 200.7	674469
60346692001	**R-P10S**	EPA 200.8	674311	EPA 200.8	674402
60346692002	**R-P16S**	EPA 200.8	674311	EPA 200.8	674402
60346692003	**R-DUP-1**	EPA 200.8	674311	EPA 200.8	674402
60346692004	**R-P30S**	EPA 200.8	674311	EPA 200.8	674402
60346692005	**R-FB-1**	EPA 200.8	674311	EPA 200.8	674402

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Sample Condition Upon Receipt

WO# : 60346692

60346692

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** 0.7 **Corr. Factor** -0.4 **Corrected** 0.3

Date and initials of person examining contents: 8.27.20 HS

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution

REVIEWED
By jchurch at 7:27 pm, 8/27/20

Project Manager Review: _____ Date: _____

F-KS-C-003-Rev.11, February 28, 2018

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Eric Schnieder, Ryan Feldman
Purchase Order No.:	153146602.0002A
Project Name:	Ameren - RDEC
Project Number:	153146602.0002A

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Molybdenum	Arsenic	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60346692
1	R-P10S	WT	G			8/25/20	1345		1			1						X	X		
2	R-P10S-MS-1	WT	G																		
3	R-P10S-MSD-1	WT	G																		
4	R-P16S	WT	G				1420														
5	R-DUP-1	WT	G			8/25/20	—														
6	R-P30S	WT	G			8/26/20	0910														
7	R-FB-1	WT	G				0906														
8		WT	G																		
9		WT	G																		
10		WT	G																		
11		WT	G																		
12		WT	G																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Eric Schnieder / Golder	08/26/20	1315	[signature] / Pace	8.27.20	0426	0.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schnieder

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 08/26/20

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

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

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

MEMORANDUM

DATE September 2, 2020

Project No. 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

FROM Annie Muehlfarth

EMAIL AMuehlfarth@golder.com

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RIEC-RCPA – ADDITIONAL CORRECTIVE ACTION SAMPLING AUGUST 2020 - DATA PACKAGE 60346692

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

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

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13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates Inc.
Project Manager: J. Ingram
Project Name: Ameren - RIEC - RCPA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 09/02/2020

Laboratory: Pace Analytical
SDG #: 60346692
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-P10S, R-P16S, R-DUP-1, R-P30S, R-FB-1

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

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	x			08/25/2020 - 08/26/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	x	☐	
b) Were analytes detected in the field blank(s)?	☐	x	☐	R-FB-1 @ RP-30S
c) Were analytes detected in the equipment blank(s)?	☐	☐	x	
d) Were analytes detected in the trip blank(s)?	☐	☐	x	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x	☐	☐	R-DUP-1 @ R-P16S
b) Were field dup. precision criteria met (note RPD)?	x	☐	☐	Max RPD 4.8% (<20%)
c) Were lab duplicates analyzed (note original and duplicate samples)?	☐	☐	x	
d) Were lab dup. precision criteria met (note RPD)?	☐	☐	x	

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

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

Comments/Notes:

None.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: _____ Ann Muehlfeldt _____ Date: 09/02/2020

Pace Analytical Services, LLC
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December 09, 2020

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

RE: Project: AMEREN-RCPA
Pace Project No.: 60350166

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

REV-1, 12/9/20: Sample IDs updated.

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN-RCPA
Pace Project No.: 60350166

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

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SAMPLE SUMMARY

Project: AMEREN-RCPA
Pace Project No.: 60350166

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60350166001	**R-P30S**	Water	10/01/20 08:55	10/02/20 04:08
60350166002	**R-P16S**	Water	10/01/20 09:50	10/02/20 04:08
60350166003	**R-P10S**	Water	10/01/20 10:50	10/02/20 04:08
60350166004	**R-FB-1**	Water	10/01/20 10:45	10/02/20 04:08
60350166005	**R-DUP-1**	Water	10/01/20 08:00	10/02/20 04:08

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SAMPLE ANALYTE COUNT

Project: AMEREN-RCPA
Pace Project No.: 60350166

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60350166001	**R-P30S**	EPA 200.7	JLH	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60350166002	**R-P16S**	EPA 200.7	JLH	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60350166003	**R-P10S**	EPA 200.7	JLH	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60350166004	**R-FB-1**	EPA 200.7	JLH	1	PASI-K
		EPA 200.8	JGP	1	PASI-K
60350166005	**R-DUP-1**	EPA 200.7	JLH	1	PASI-K
		EPA 200.8	JGP	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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ANALYTICAL RESULTS

Project: AMEREN-RCPA
Pace Project No.: 60350166

Sample: R-P30S **Lab ID: 60350166001** Collected: 10/01/20 08:55 Received: 10/02/20 04:08 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								
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	10/13/20 12:30	10/14/20 13:13	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.3**	ug/L	1.0	0.086	1	10/14/20 15:00	10/15/20 10:56	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RCPA
Pace Project No.: 60350166

Sample: R-P16S **Lab ID: 60350166002** Collected: 10/01/20 09:50 Received: 10/02/20 04:08 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								
Molybdenum	**15.0J**	ug/L	20.0	1.7	1	10/13/20 12:30	10/14/20 13:28	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**1.2**	ug/L	1.0	0.086	1	10/14/20 15:00	10/15/20 11:01	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RCPA
Pace Project No.: 60350166

Sample: R-P10S **Lab ID: 60350166003** Collected: 10/01/20 10:50 Received: 10/02/20 04:08 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								
Molybdenum	**118**	ug/L	20.0	1.7	1	10/13/20 12:30	10/14/20 13:30	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**10.0**	ug/L	1.0	0.086	1	10/14/20 15:00	10/15/20 11:02	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RCPA
Pace Project No.: 60350166

Sample: R-FB-1 **Lab ID: 60350166004** Collected: 10/01/20 10:45 Received: 10/02/20 04:08 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								
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	10/13/20 12:30	10/14/20 13:33	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**<0.086**	ug/L	1.0	0.086	1	10/14/20 15:00	10/15/20 11:09	7440-38-2	

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ANALYTICAL RESULTS

Project: AMEREN-RCPA
Pace Project No.: 60350166

Sample: R-DUP-1 **Lab ID: 60350166005** Collected: 10/01/20 08:00 Received: 10/02/20 04:08 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								
Molybdenum	**15.3J**	ug/L	20.0	1.7	1	10/13/20 12:30	10/14/20 13:35	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City								
Arsenic	**2.0**	ug/L	1.0	0.086	1	10/14/20 15:00	10/15/20 11:04	7440-38-2	

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QUALITY CONTROL DATA

Project: AMEREN-RCPA
Pace Project No.: 60350166

QC Batch: 682419
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60350166001, 60350166002, 60350166003, 60350166004, 60350166005

METHOD BLANK: 2758526 Matrix: Water
Associated Lab Samples: 60350166001, 60350166002, 60350166003, 60350166004, 60350166005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	ug/L	<1.7	20.0	1.7	10/14/20 13:10	

LABORATORY CONTROL SAMPLE: 2758527

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	500	488	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2758528 2758529

Parameter	Units	60350166001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	<1.7	500	500	524	518	105	103	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN-RCPA
Pace Project No.: 60350166

QC Batch: 682801
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60350166001, 60350166002, 60350166003, 60350166004, 60350166005

METHOD BLANK: 2759916 Matrix: Water
Associated Lab Samples: 60350166001, 60350166002, 60350166003, 60350166004, 60350166005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.086	1.0	0.086	10/15/20 10:50	

LABORATORY CONTROL SAMPLE: 2759917

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	39.6	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759918 2759919

Parameter	Units	60350166001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	1.3	40	40	42.1	41.9	102	102	70-130	0	20	

MATRIX SPIKE SAMPLE: 2759920

Parameter	Units	60350145003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	40	41.8	104	70-130	

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

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QUALIFIERS

Project: AMEREN-RCPA
Pace Project No.: 60350166

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN-RCPA
Pace Project No.: 60350166

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60350166001	**R-P30S**	EPA 200.7	682419	EPA 200.7	682539
60350166002	**R-P16S**	EPA 200.7	682419	EPA 200.7	682539
60350166003	**R-P10S**	EPA 200.7	682419	EPA 200.7	682539
60350166004	**R-FB-1**	EPA 200.7	682419	EPA 200.7	682539
60350166005	**R-DUP-1**	EPA 200.7	682419	EPA 200.7	682539
60350166001	**R-P30S**	EPA 200.8	682801	EPA 200.8	682874
60350166002	**R-P16S**	EPA 200.8	682801	EPA 200.8	682874
60350166003	**R-P10S**	EPA 200.8	682801	EPA 200.8	682874
60350166004	**R-FB-1**	EPA 200.8	682801	EPA 200.8	682874
60350166005	**R-DUP-1**	EPA 200.8	682801	EPA 200.8	682874

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Sample Condition Upon Receipt

WO#: 60350166

60350166

Client Name: Golder Associates

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

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

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

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

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

Cooler Temperature (°C): **As-read** .5 **Corr. Factor** +.2 **Corrected** .7

Date and initials of person examining contents: 10/2/20

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: Wtt	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# L003173	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: Date/Time: _____

Comments/ Resolution:

REVIEWED
By jchurch at 8:18 pm, 10/4/20

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann/Eric Schneider
Purchase Order No.:	
Project Name:	Ameren - RCPA
Project Number:	153140602.2002A

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES — GROUND WATER — DRINKING WATER

UST — RCRA — OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	200.7 Molybdenum	200.8 Arsenic	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	R-P305	WT	G			10/1/20	0855		1			1							X	X		60350166
2	R-P165	WT	G				0950															
3	R-P105	WT	G				1050															
4	R-MS-1	WT	G				0855															
5	R-MSD-1	WT	G				0855															
6	R-DUP-1	WT	G				—															
7	R-FB-1	WT	G				1045															
8		WT	G																			
9		WT	G																			
10		WT	G																			
11		WT	G																			
12		WT	G																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] Golder	10/1/20	1300	[signature] Pace	10/2/20	0408	.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/01/20

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

MEMORANDUM

DATE December 10, 2020 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA - ADDITIONAL CORRECTIVE ACTION SAMPLING OCTOBER 2020 - DATA PACKAGE 60350166REV1

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

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

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13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 12/10/2020

Laboratory: Pace Analytical
SDG #: 60350166rev1
Analytical Method (type and no.): EPA 200.7/200.8 (Total Metals)
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names R-P30S, R-P16S, R-P10S, R-FB-1, R-DUP-1

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			10/01/2020
b) Sampling team indicated?	x			
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	x	☐	
b) Were analytes detected in the field blank(s)?	☐	x	☐	R-FB-1 @ R-P10S
c) Were analytes detected in the equipment blank(s)?	☐	☐	x	
d) Were analytes detected in the trip blank(s)?	☐	☐	x	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x	☐	☐	R-DUP-1 @ R-P16S
b) Were field dup. precision criteria met (note RPD)?	☐	x	☐	See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	☐	☐	x	
d) Were lab dup. precision criteria met (note RPD)?	☐	☐	x	

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

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

Comments/Notes:

DUP: R-DUP-1 @ R-P16S: RPD (50%) exceeds limit (>20%) for Arsenic.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-P16S	Arsenic	1.2	J	DUP RPD exceeds limits
R-DUP-1	"	2.0	J	"

Signature: Ann Muehlfeldt Date: 10/16/2020

Pace Analytical Services, LLC
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December 09, 2020

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

RE: Project: AMEREN RCPA
Pace Project No.: 60352698

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between October 28, 2020 and October 30, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

REV-1, 12/9/20: Sample date change for R-MW-B1

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

Sincerely,

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

Enclosures

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

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CERTIFICATIONS

Project: AMEREN RCPA
Pace Project No.: 60352698

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
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60352698001	**R-MW-1**	Water	10/26/20 09:43	10/28/20 04:10
60352698002	**R-MW-2**	Water	10/26/20 15:45	10/28/20 04:10
60352698003	**R-MW-3**	Water	10/27/20 15:55	10/28/20 04:10
60352698004	**R-MW-6**	Water	10/26/20 13:30	10/28/20 04:10
60352698005	**R-MW-7 (r)**	Water	10/26/20 11:55	10/28/20 04:10
60352698006	**R-MW-B1**	Water	10/27/20 14:26	10/28/20 04:10
60352698007	**R-MW-B2**	Water	10/27/20 13:07	10/28/20 04:10
60352698008	**R-DUP-1**	Water	10/26/20 08:00	10/28/20 04:10
60352698009	**R-FB-1**	Water	10/26/20 14:05	10/28/20 04:10
60352698010	**R-MW-1 MS**	Water	10/26/20 09:43	10/28/20 04:10
60352698011	**R-MW-1 MSD**	Water	10/26/20 09:43	10/28/20 04:10
60352698012	**R-MW-4**	Water	10/28/20 12:00	10/30/20 04:31
60352698013	**R-MW-5**	Water	10/28/20 09:50	10/30/20 04:31

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60352698001	**R-MW-1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352698002	**R-MW-2**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352698003	**R-MW-3**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352698004	**R-MW-6**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352698005	**R-MW-7 (r)**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60352698006	**R-MW-B1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60352698007	**R-MW-B2**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
60352698008	**R-DUP-1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60352698009	**R-FB-1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352698010	**R-MW-1 MS**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60352698011	**R-MW-1 MSD**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60352698012	**R-MW-4**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	VRP	3	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60352698013	**R-MW-5**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	VRP	3	PASI-K

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

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-1 **Lab ID: 60352698001** Collected: 10/26/20 09:43 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**116**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:59	7440-39-3	
Boron	**1620**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:59	7440-42-8	
Calcium	**151000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:59	7440-70-2	M1
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:59	7440-48-4	
Iron	**84.7**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:59	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:59	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:59	7439-93-2	
Magnesium	**22000**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:59	7439-95-4	
Manganese	**102**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:59	7439-96-5	
Molybdenum	**15.8J**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:59	7439-98-7	
Potassium	**11100**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:59	7440-09-7	
Sodium	**130000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:59	7440-23-5	M1
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.11J**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:28	7440-36-0	
Arsenic	**3.0**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:28	7440-38-2	
Cadmium	**0.24J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:28	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:28	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:28	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**418**	mg/L	20.0	8.4	1		11/04/20 11:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**975**	mg/L	13.3	13.3	1		10/29/20 13:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**14.7**	mg/L	1.0	0.39	1		11/14/20 18:59	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.075	1		11/14/20 18:59	16984-48-8	
Sulfate	**386**	mg/L	20.0	5.6	20		11/14/20 20:27	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-2 **Lab ID: 60352698002** Collected: 10/26/20 15:45 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**10.2**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:07	7440-39-3	
Boron	**5570**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:07	7440-42-8	
Calcium	**9540**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:07	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:07	7440-48-4	
Iron	**60.1**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:07	7439-89-6	
Lead	**10.2**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:07	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:07	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:07	7439-95-4	
Manganese	**1.3J**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:07	7439-96-5	
Molybdenum	**222**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:07	7439-98-7	
Potassium	**3100**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:07	7440-09-7	
Sodium	**216000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:07	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**2.5**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:34	7440-36-0	
Arsenic	**212**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:34	7440-38-2	
Cadmium	**0.21J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:34	7440-43-9	
Chromium	**0.39J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:34	7440-47-3	
Selenium	**1.4**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:34	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**211**	mg/L	20.0	8.4	1		11/04/20 12:01		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**748**	mg/L	10.0	10.0	1		10/29/20 13:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**26.2**	mg/L	2.0	0.78	2		11/16/20 09:51	16887-00-6	
Fluoride	**0.96**	mg/L	0.20	0.075	1		11/14/20 23:46	16984-48-8	
Sulfate	**305**	mg/L	20.0	5.6	20		11/16/20 10:05	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-3 **Lab ID: 60352698003** Collected: 10/27/20 15:55 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**15.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:10	7440-39-3	
Boron	**13900**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:10	7440-42-8	
Calcium	**6100**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:10	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:10	7440-48-4	
Iron	**146**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:10	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:10	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:10	7439-93-2	
Magnesium	**123**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:10	7439-95-4	
Manganese	**5.2**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:10	7439-96-5	
Molybdenum	**774**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:10	7439-98-7	
Potassium	**1700**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:10	7440-09-7	
Sodium	**232000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:10	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:36	7440-36-0	
Arsenic	**44.2**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:36	7440-38-2	
Cadmium	**0.085J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:36	7440-43-9	
Chromium	**0.32J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:36	7440-47-3	
Selenium	**0.45J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:36	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**329**	mg/L	20.0	8.4	1		11/05/20 12:24		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**758**	mg/L	10.0	10.0	1		11/03/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**31.4**	mg/L	2.0	0.78	2		11/16/20 10:34	16887-00-6	
Fluoride	**1.1**	mg/L	0.20	0.075	1		11/16/20 10:19	16984-48-8	
Sulfate	**202**	mg/L	20.0	5.6	20		11/16/20 10:48	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-6 **Lab ID: 60352698004** Collected: 10/26/20 13:30 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**123**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:12	7440-39-3	
Boron	**797**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:12	7440-42-8	
Calcium	**86900**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:12	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:12	7440-48-4	
Iron	**109**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:12	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:12	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:12	7439-93-2	
Magnesium	**12500**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:12	7439-95-4	
Manganese	**97.6**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:12	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:12	7439-98-7	
Potassium	**1250**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:12	7440-09-7	
Sodium	**13100**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:12	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:43	7440-36-0	
Arsenic	**1.4**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:43	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:43	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:43	7440-47-3	
Selenium	**0.30J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:43	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**277**	mg/L	20.0	8.4	1		11/04/20 12:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**320**	mg/L	5.0	5.0	1		10/29/20 13:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**6.6**	mg/L	1.0	0.39	1		11/16/20 11:03	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.075	1		11/16/20 11:03	16984-48-8	
Sulfate	**23.7**	mg/L	2.0	0.56	2		11/16/20 11:17	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-7 (r) **Lab ID: 60352698005** Collected: 10/26/20 11:55 Received: 10/28/20 04:10 Matrix: Water

Comments: • Sample collection times were not present on the sample containers.

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	**162**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:22	7440-39-3	
Boron	**2250**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:22	7440-42-8	
Calcium	**64900**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:22	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:22	7440-48-4	
Iron	**6550**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:22	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:22	7439-92-1	
Lithium	**24.0**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:22	7439-93-2	
Magnesium	**19200**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:22	7439-95-4	
Manganese	**320**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:22	7439-96-5	
Molybdenum	**95.2**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:22	7439-98-7	
Potassium	**5160**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:22	7440-09-7	
Sodium	**24800**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:22	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:45	7440-36-0	
Arsenic	**97.7**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:45	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:45	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:45	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:45	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**279**	mg/L	20.0	8.4	1		11/04/20 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**364**	mg/L	5.0	5.0	1		10/29/20 13:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**11.3**	mg/L	1.0	0.39	1		11/17/20 22:15	16887-00-6	
Fluoride	**0.44**	mg/L	0.20	0.075	1		11/17/20 22:15	16984-48-8	
Sulfate	**37.0**	mg/L	5.0	1.4	5		11/17/20 00:04	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-B1 **Lab ID: 60352698006** Collected: 10/27/20 14:26 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**498**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:25	7440-39-3	
Boron	**109**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:25	7440-42-8	
Calcium	**153000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:25	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:25	7440-48-4	
Iron	**26200**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:25	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:25	7439-92-1	
Lithium	**52.8**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:25	7439-93-2	
Magnesium	**49700**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:25	7439-95-4	
Manganese	**1330**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:25	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:25	7439-98-7	
Potassium	**8700**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:25	7440-09-7	
Sodium	**23600**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:25	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:47	7440-36-0	
Arsenic	**24.0**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:47	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:47	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:47	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:47	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**557**	mg/L	20.0	8.4	1		11/04/20 12:27		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**668**	mg/L	10.0	10.0	1		10/29/20 13:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**47.9**	mg/L	5.0	1.9	5		11/14/20 22:09	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.075	1		11/17/20 22:31	16984-48-8	
Sulfate	**37.9**	mg/L	5.0	1.4	5		11/14/20 22:09	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-B2 **Lab ID: 60352698007** Collected: 10/27/20 13:07 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**386**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:27	7440-39-3	
Boron	**41.1J**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:27	7440-42-8	
Calcium	**106000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:27	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:27	7440-48-4	
Iron	**9280**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:27	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:27	7439-92-1	
Lithium	**4.8J**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:27	7439-93-2	
Magnesium	**19400**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:27	7439-95-4	
Manganese	**240**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:27	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:27	7439-98-7	
Potassium	**1950**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:27	7440-09-7	
Sodium	**16400**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:27	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:49	7440-36-0	
Arsenic	**5.3**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:49	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:49	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:49	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:49	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**337**	mg/L	20.0	8.4	1		11/05/20 12:30		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**388**	mg/L	10.0	10.0	1		11/03/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**19.7**	mg/L	1.0	0.39	1		11/17/20 22:46	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.075	1		11/17/20 22:46	16984-48-8	
Sulfate	**15.9**	mg/L	1.0	0.28	1		11/17/20 22:46	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-DUP-1 **Lab ID: 60352698008** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 Matrix: Water

Comments: • Sample collection times were not present on the sample containers.

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	**181**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:30	7440-39-3	
Boron	**2450**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:30	7440-42-8	
Calcium	**70500**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:30	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:30	7440-48-4	
Iron	**7060**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:30	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:30	7439-92-1	
Lithium	**26.4**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:30	7439-93-2	
Magnesium	**20700**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:30	7439-95-4	
Manganese	**345**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:30	7439-96-5	
Molybdenum	**105**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:30	7439-98-7	
Potassium	**5600**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:30	7440-09-7	
Sodium	**26800**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:30	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:51	7440-36-0	
Arsenic	**89.5**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:51	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:51	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:51	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:51	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**279**	mg/L	20.0	8.4	1		11/04/20 12:32		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**368**	mg/L	5.0	5.0	1		10/29/20 13:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**11.3**	mg/L	1.0	0.39	1		11/17/20 23:02	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	0.075	1		11/17/20 23:02	16984-48-8	
Sulfate	**39.7**	mg/L	10.0	2.8	10		11/14/20 23:36	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-FB-1 **Lab ID: 60352698009** Collected: 10/26/20 14:05 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 16:33	7440-39-3	
Boron	**<11.7**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 16:33	7440-42-8	
Calcium	**<32.4**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 16:33	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 16:33	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 16:33	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:33	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 16:33	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 16:33	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 16:33	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 16:33	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	11/13/20 13:15	11/16/20 16:33	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	11/13/20 13:15	11/16/20 16:33	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:22	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:22	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:22	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:22	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:22	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		11/04/20 12:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		10/29/20 13:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		11/16/20 14:40	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		11/16/20 14:40	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		11/16/20 14:40	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-4 **Lab ID: 60352698012** Collected: 10/28/20 12:00 Received: 10/30/20 04:31 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	**272**	ug/L	5.0	1.8	1	11/10/20 15:45	11/11/20 10:43	7440-39-3	
Boron	**3780**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:43	7440-42-8	
Calcium	**69100**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:43	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:43	7440-48-4	
Iron	**5240**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:43	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:43	7439-92-1	
Lithium	**37.8**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:43	7439-93-2	
Magnesium	**13400**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:43	7439-95-4	
Manganese	**261**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:43	7439-96-5	
Molybdenum	**112**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:43	7439-98-7	
Potassium	**4910**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:43	7440-09-7	
Sodium	**62800**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:43	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 06:00	7440-36-0	
Arsenic	**9.8**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 06:00	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 06:00	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 06:00	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 06:00	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**686**	mg/L	20.0	8.4	1		11/05/20 14:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**430**	mg/L	10.0	10.0	1		11/03/20 14:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**20.3**	mg/L	2.0	0.78	2		11/11/20 00:36	16887-00-6	
Fluoride	**0.91**	mg/L	0.20	0.075	1		11/11/20 00:21	16984-48-8	
Sulfate	**55.0**	mg/L	5.0	1.4	5		11/11/20 00:50	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-5 **Lab ID: 60352698013** Collected: 10/28/20 09:50 Received: 10/30/20 04:31 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	**364**	ug/L	5.0	1.8	1	11/10/20 15:45	11/11/20 10:54	7440-39-3	
Boron	**80.7J**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:54	7440-42-8	
Calcium	**132000**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:54	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:54	7440-48-4	
Iron	**11700**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:54	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:54	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:54	7439-93-2	
Magnesium	**17200**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:54	7439-95-4	
Manganese	**443**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:54	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:54	7439-98-7	
Potassium	**2220**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:54	7440-09-7	
Sodium	**4540**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:54	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 06:01	7440-36-0	
Arsenic	**1.9**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 06:01	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 06:01	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 06:01	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 06:01	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**383**	mg/L	20.0	8.4	1		11/05/20 14:33		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**432**	mg/L	10.0	10.0	1		11/03/20 14:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**5.6**	mg/L	1.0	0.39	1		11/11/20 01:05	16887-00-6	
Fluoride	**0.18J**	mg/L	0.20	0.075	1		11/11/20 01:05	16984-48-8	
Sulfate	**8.7**	mg/L	1.0	0.28	1		11/11/20 01:05	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 688410
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2782186 Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	11/11/20 10:24	
Boron	ug/L	<11.7	100	11.7	11/11/20 10:24	
Calcium	ug/L	<32.4	200	32.4	11/11/20 10:24	
Cobalt	ug/L	<1.5	5.0	1.5	11/11/20 10:24	
Iron	ug/L	<26.8	50.0	26.8	11/11/20 10:24	
Lead	ug/L	<4.6	10.0	4.6	11/11/20 10:24	
Lithium	ug/L	<4.6	10.0	4.6	11/11/20 10:24	
Magnesium	ug/L	<19.7	50.0	19.7	11/11/20 10:24	
Manganese	ug/L	<0.97	5.0	0.97	11/11/20 10:24	
Molybdenum	ug/L	<1.7	20.0	1.7	11/11/20 10:24	
Potassium	ug/L	<189	500	189	11/11/20 10:24	
Sodium	ug/L	<107	500	107	11/11/20 10:24	

LABORATORY CONTROL SAMPLE: 2782187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1000	100	85-115	
Boron	ug/L	1000	985	99	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	1040	104	85-115	
Iron	ug/L	10000	10400	104	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Magnesium	ug/L	10000	9850	98	85-115	
Manganese	ug/L	1000	992	99	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	10200	102	85-115	
Sodium	ug/L	10000	9900	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782188 2782189

Parameter	Units	60352696020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	185	1000	1000	1180	1190	99	100	70-130	1	20	
Boron	ug/L	4310	1000	1000	5190	5130	88	82	70-130	1	20	
Calcium	ug/L	69400	10000	10000	77700	78000	83	86	70-130	0	20	
Cobalt	ug/L	<1.5	1000	1000	1000	1000	100	100	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782188 2782189

Parameter	Units	60352696020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	10300	10000	10000	20200	20400	99	100	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	1000	997	100	99	70-130	0	20	
Lithium	ug/L	16.1	1000	1000	1020	1030	100	101	70-130	1	20	
Magnesium	ug/L	20800	10000	10000	30200	29900	94	91	70-130	1	20	
Manganese	ug/L	298	1000	1000	1280	1260	98	96	70-130	2	20	
Molybdenum	ug/L	20.1	1000	1000	1050	1040	103	102	70-130	0	20	
Potassium	ug/L	5790	10000	10000	15600	15800	98	100	70-130	1	20	
Sodium	ug/L	38200	10000	10000	47400	47300	92	90	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 689219
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

METHOD BLANK: 2784891
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	11/16/20 15:54	
Boron	ug/L	<11.7	100	11.7	11/16/20 15:54	
Calcium	ug/L	<32.4	200	32.4	11/16/20 15:54	
Cobalt	ug/L	<1.5	5.0	1.5	11/16/20 15:54	
Iron	ug/L	<26.8	50.0	26.8	11/16/20 15:54	
Lead	ug/L	<4.6	10.0	4.6	11/16/20 15:54	
Lithium	ug/L	<4.6	10.0	4.6	11/16/20 15:54	
Magnesium	ug/L	<19.7	50.0	19.7	11/16/20 15:54	
Manganese	ug/L	<0.97	5.0	0.97	11/16/20 15:54	
Molybdenum	ug/L	<1.7	20.0	1.7	11/16/20 15:54	
Potassium	ug/L	<189	500	189	11/16/20 15:54	
Sodium	ug/L	<107	500	107	11/16/20 15:54	

LABORATORY CONTROL SAMPLE: 2784892

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	930	93	85-115	
Boron	ug/L	1000	930	93	85-115	
Calcium	ug/L	10000	9500	95	85-115	
Cobalt	ug/L	1000	966	97	85-115	
Iron	ug/L	10000	9520	95	85-115	
Lead	ug/L	1000	969	97	85-115	
Lithium	ug/L	1000	943	94	85-115	
Magnesium	ug/L	10000	9470	95	85-115	
Manganese	ug/L	1000	936	94	85-115	
Molybdenum	ug/L	1000	956	96	85-115	
Potassium	ug/L	10000	9530	95	85-115	
Sodium	ug/L	10000	9290	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784893 2784894

Parameter	Units	60352698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	116	1000	1000	1080	1110	96	99	70-130	3	20	
Boron	ug/L	1620	1000	1000	2640	2720	102	110	70-130	3	20	
Calcium	ug/L	151000	10000	10000	162000	167000	109	160	70-130	3	20	M1

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784893 2784894

Parameter	Units	60352698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	<1.5	1000	1000	976	1010	98	101	70-130	3	20	
Iron	ug/L	84.7	10000	10000	9770	10100	97	100	70-130	3	20	
Lead	ug/L	<4.6	1000	1000	963	999	96	100	70-130	4	20	
Lithium	ug/L	<4.6	1000	1000	971	1000	97	100	70-130	3	20	
Magnesium	ug/L	22000	10000	10000	31800	32700	98	107	70-130	3	20	
Manganese	ug/L	102	1000	1000	1060	1090	95	99	70-130	3	20	
Molybdenum	ug/L	15.8J	1000	1000	1020	1050	100	103	70-130	3	20	
Potassium	ug/L	11100	10000	10000	21100	21800	100	107	70-130	3	20	
Sodium	ug/L	130000	10000	10000	142000	145000	118	155	70-130	3	20	M1

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 688411
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2782190 Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	11/12/20 05:46	
Arsenic	ug/L	<0.086	1.0	0.086	11/12/20 05:46	
Cadmium	ug/L	<0.056	0.50	0.056	11/12/20 05:46	
Chromium	ug/L	<0.22	1.0	0.22	11/12/20 05:46	
Selenium	ug/L	<0.18	1.0	0.18	11/12/20 05:46	

LABORATORY CONTROL SAMPLE: 2782191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	38.7	97	85-115	
Cadmium	ug/L	40	38.0	95	85-115	
Chromium	ug/L	40	38.4	96	85-115	
Selenium	ug/L	40	38.0	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782192 2782193

Parameter	Units	60352696021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.097	40	40	37.6	37.5	94	94	70-130	0	20	
Arsenic	ug/L	1.1	40	40	39.7	39.2	96	95	70-130	1	20	
Cadmium	ug/L	0.13J	40	40	36.0	35.7	90	89	70-130	1	20	
Chromium	ug/L	<0.22	40	40	35.8	35.3	89	88	70-130	1	20	
Selenium	ug/L	<0.18	40	40	35.6	35.5	89	89	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 689221
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

METHOD BLANK: 2784901
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	11/16/20 17:24	
Arsenic	ug/L	<0.086	1.0	0.086	11/16/20 17:24	
Cadmium	ug/L	<0.056	0.50	0.056	11/16/20 17:24	
Chromium	ug/L	<0.22	1.0	0.22	11/16/20 17:24	
Selenium	ug/L	<0.18	1.0	0.18	11/16/20 17:24	

LABORATORY CONTROL SAMPLE: 2784902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	39.6	99	85-115	
Cadmium	ug/L	40	38.6	96	85-115	
Chromium	ug/L	40	39.0	97	85-115	
Selenium	ug/L	40	39.1	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784903 2784904

Parameter	Units	60352698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.11J	40	40	36.1	36.3	90	90	70-130	1	20	
Arsenic	ug/L	3.0	40	40	41.4	41.4	96	96	70-130	0	20	
Cadmium	ug/L	0.24J	40	40	34.4	34.3	85	85	70-130	0	20	
Chromium	ug/L	<0.22	40	40	37.0	36.7	92	91	70-130	1	20	
Selenium	ug/L	<0.18	40	40	35.3	35.6	88	89	70-130	1	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 687066
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698001, 60352698002, 60352698004, 60352698005, 60352698006, 60352698008, 60352698009

METHOD BLANK: 2776658
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698004, 60352698005, 60352698006, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/04/20 10:22	

LABORATORY CONTROL SAMPLE: 2776659

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

SAMPLE DUPLICATE: 2776660

Parameter	Units	60352696004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	198	197	0	10	

SAMPLE DUPLICATE: 2776661

Parameter	Units	60352698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	418	424	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 687334
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698003, 60352698007

METHOD BLANK: 2777779
Matrix: Water
Associated Lab Samples: 60352698003, 60352698007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/05/20 10:07	

LABORATORY CONTROL SAMPLE: 2777780

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

SAMPLE DUPLICATE: 2777781

Parameter	Units	60353110006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	583	599	3	10	

SAMPLE DUPLICATE: 2777782

Parameter	Units	60352696008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	220	218	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 687335
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2777783
Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/05/20 13:21	

LABORATORY CONTROL SAMPLE: 2777784

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

SAMPLE DUPLICATE: 2777785

Parameter	Units	60352917002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	646	658	2	10	

SAMPLE DUPLICATE: 2777786

Parameter	Units	60353027003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	408	409	0	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 686004
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698001, 60352698002, 60352698004, 60352698005, 60352698006, 60352698008, 60352698009

METHOD BLANK: 2772769
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698004, 60352698005, 60352698006, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/29/20 13:55	

LABORATORY CONTROL SAMPLE: 2772770

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

SAMPLE DUPLICATE: 2772771

Parameter	Units	60352696004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	752	796	6	10	

SAMPLE DUPLICATE: 2772772

Parameter	Units	60352698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	975	967	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 686937
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698003, 60352698007, 60352698012, 60352698013

METHOD BLANK: 2776278 Matrix: Water
Associated Lab Samples: 60352698003, 60352698007, 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/03/20 14:13	

LABORATORY CONTROL SAMPLE: 2776279

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

SAMPLE DUPLICATE: 2776280

Parameter	Units	60352694006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	9900	9600	3	10	

SAMPLE DUPLICATE: 2776281

Parameter	Units	60352696013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	487	496	2	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 688350
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2782039 Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/10/20 18:27	
Fluoride	mg/L	<0.075	0.20	0.075	11/10/20 18:27	
Sulfate	mg/L	<0.28	1.0	0.28	11/10/20 18:27	

METHOD BLANK: 2782310 Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/10/20 23:08	
Fluoride	mg/L	<0.075	0.20	0.075	11/10/20 23:08	
Sulfate	mg/L	<0.28	1.0	0.28	11/10/20 23:08	

METHOD BLANK: 2782512 Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/11/20 09:01	
Fluoride	mg/L	<0.075	0.20	0.075	11/11/20 09:01	
Sulfate	mg/L	<0.28	1.0	0.28	11/11/20 09:01	

LABORATORY CONTROL SAMPLE: 2782040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.4	109	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	5.5	110	90-110	

LABORATORY CONTROL SAMPLE: 2782311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.2	105	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

LABORATORY CONTROL SAMPLE: 2782513

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.2	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782041 2782042

Parameter	Units	60353027001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	64.2	50	50	128	124	128	119	80-120	4	15	M1
Fluoride	mg/L	0.40	2.5	2.5	2.7	2.7	91	91	80-120	0	15	
Sulfate	mg/L	325	100	100	450	452	124	127	80-120	1	15	E,M1

MATRIX SPIKE SAMPLE: 2782043

Parameter	Units	60353036003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	826	500	1470	129	80-120	M1
Fluoride	mg/L	ND	250	288	115	80-120	
Sulfate	mg/L	606	500	1220	123	80-120	M1

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 689325
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698002, 60352698003, 60352698004

METHOD BLANK: 2785160 Matrix: Water
Associated Lab Samples: 60352698002, 60352698003, 60352698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.56J	1.0	0.39	11/14/20 10:03	
Fluoride	mg/L	<0.075	0.20	0.075	11/14/20 10:03	
Sulfate	mg/L	<0.28	1.0	0.28	11/14/20 10:03	

METHOD BLANK: 2785999 Matrix: Water
Associated Lab Samples: 60352698002, 60352698003, 60352698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/16/20 20:12	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 20:12	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 20:12	

METHOD BLANK: 2786248 Matrix: Water
Associated Lab Samples: 60352698002, 60352698003, 60352698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.56J	1.0	0.39	11/16/20 09:14	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 09:14	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 09:14	

LABORATORY CONTROL SAMPLE: 2785161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	107	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.4	107	90-110	

LABORATORY CONTROL SAMPLE: 2786000

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	5.0	100	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

LABORATORY CONTROL SAMPLE: 2786249

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	2.6	102	90-110	
Sulfate	mg/L	5	5.4	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2785162 2785163

Parameter	Units	60352696004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	25.1	10	10	35.5	36.0	104	109	80-120	1	15	
Fluoride	mg/L	2.2	2.5	2.5	4.5	4.6	91	97	80-120	3	15	
Sulfate	mg/L	303	100	100	388	390	86	87	80-120	0	15	

MATRIX SPIKE SAMPLE: 2785164

Parameter	Units	60352696010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	32.7	50	81.0	97	80-120	
Fluoride	mg/L	1.1	2.5	3.5	94	80-120	
Sulfate	mg/L	85.0	50	134	97	80-120	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 689327
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

METHOD BLANK: 2785169 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/14/20 18:30	
Fluoride	mg/L	<0.075	0.20	0.075	11/14/20 18:30	
Sulfate	mg/L	<0.28	1.0	0.28	11/14/20 18:30	

METHOD BLANK: 2786006 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/16/20 09:35	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 09:35	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 09:35	

METHOD BLANK: 2787243 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/16/20 20:12	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 20:12	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 20:12	

METHOD BLANK: 2787510 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/17/20 17:00	
Fluoride	mg/L	<0.075	0.20	0.075	11/17/20 17:00	
Sulfate	mg/L	<0.28	1.0	0.28	11/17/20 17:00	

METHOD BLANK: 2788091 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/18/20 08:50	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

METHOD BLANK: 2788091 Matrix: Water
Associated Lab Samples: 60352698001, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.075	0.20	0.075	11/18/20 08:50	
Sulfate	mg/L	<0.28	1.0	0.28	11/18/20 08:50	

LABORATORY CONTROL SAMPLE: 2785170

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Sulfate	mg/L	5	5.3	106	90-110	

LABORATORY CONTROL SAMPLE: 2786007

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

LABORATORY CONTROL SAMPLE: 2787244

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	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 2787511

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.4	96	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

LABORATORY CONTROL SAMPLE: 2788092

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RCPA
Pace Project No.: 60352698

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2785171 2785172

Parameter	Units	60352698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	14.7	10	10	24.8	24.5	101	98	80-120	1	15	
Fluoride	mg/L	0.23	2.5	2.5	2.9	2.9	106	105	80-120	0	15	
Sulfate	mg/L	386	100	100	489	497	103	111	80-120	2	15	E

MATRIX SPIKE SAMPLE: 2788120

Parameter	Units	60353343004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	9.9	5	14.9	101	80-120	
Fluoride	mg/L	0.37	2.5	2.6	90	80-120	
Sulfate	mg/L	1790	1000	2770	98	80-120	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-1 **Lab ID: 60352698001** Collected: 10/26/20 09:43 Received: 10/28/20 04:10 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 ± 0.476 (0.974) C:NA T:76%**	pCi/L	11/20/20 14:39	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.226 ± 0.431 (0.945) C:71% T:85%**	pCi/L	11/19/20 11:09	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-2 **Lab ID: 60352698002** Collected: 10/26/20 15:45 Received: 10/28/20 04:10 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	**0.216 ± 0.375 (0.669)** **C:NA T:87%**	pCi/L	11/20/20 14:39	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.434 ± 0.477 (0.996)** **C:62% T:80%**	pCi/L	11/19/20 14:20	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-3 **Lab ID: 60352698003** Collected: 10/27/20 15:55 Received: 10/28/20 04:10 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	**-0.132 ± 0.368 (0.868) C:NA T:93%**	pCi/L	11/20/20 14:49	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.414 ± 0.426 (0.884) C:69% T:82%**	pCi/L	11/19/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-6 **Lab ID: 60352698004** Collected: 10/26/20 13:30 Received: 10/28/20 04:10 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	**0.389 ± 0.510 (0.849) C:NA T:91%**	pCi/L	11/20/20 14:39	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.0225 ± 0.422 (0.982) C:64% T:83%**	pCi/L	11/19/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-7 (r) **Lab ID: 60352698005** Collected: 10/26/20 11:55 Received: 10/28/20 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.623 ± 0.564 (0.831)** **C:NA T:90%**	pCi/L	11/20/20 14:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.502 ± 0.472 (0.964)** **C:65% T:81%**	pCi/L	11/19/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-B1 **Lab ID: 60352698006** Collected: 10/27/20 14:26 Received: 10/28/20 04:10 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	**0.681 ± 0.659 (1.02) C:NA T:88%**	pCi/L	11/20/20 14:39	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.810 ± 0.471 (0.873) C:68% T:83%**	pCi/L	11/19/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-B2 **Lab ID: 60352698007** Collected: 10/27/20 13:07 Received: 10/28/20 04:10 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 ± 0.526 (1.09)** **C:NA T:94%**	pCi/L	11/20/20 15:03	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.279 ± 0.426 (0.921)** **C:64% T:88%**	pCi/L	11/19/20 11:08	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-DUP-1 **Lab ID: 60352698008** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.398 ± 0.471 (0.740) C:NA T:84%**	pCi/L	11/20/20 15:03	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.212 ± 0.364 (0.793) C:71% T:82%**	pCi/L	11/19/20 11:09	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-FB-1 **Lab ID: 60352698009** Collected: 10/26/20 14:05 Received: 10/28/20 04:10 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	**-0.170 ± 0.409 (1.02) C:NA T:80%**	pCi/L	11/20/20 15:03	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.457 ± 0.482 (1.01) C:68% T:82%**	pCi/L	11/19/20 11:09	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-1 MS **Lab ID: 60352698010** Collected: 10/26/20 09:43 Received: 10/28/20 04:10 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	**97.40 %REC ± NA (NA) C:NA T:NA%**	pCi/L	11/20/20 15:03	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**121.18 %REC ± NA(NA) C:NA T:NA**	pCi/L	11/19/20 11:10	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-1 MSD **Lab ID: 60352698011** Collected: 10/26/20 09:43 Received: 10/28/20 04:10 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	**100.87 %REC 3.50 RPD ± NA (NA) C:NA T:NA%**	pCi/L	11/20/20 15:03	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**111.97 %REC 7.90 RPD ± NA(NA) C:NA T:NA**	pCi/L	11/19/20 11:09	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-4 **Lab ID: 60352698012** Collected: 10/28/20 12:00 Received: 10/30/20 04:31 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	**0.441 ± 0.481 (0.757) C:NA T:83%**	pCi/L	11/23/20 12:57	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.158 ± 0.464 (1.10) C:68% T:78%**	pCi/L	11/19/20 14:20	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

Sample: R-MW-5 **Lab ID: 60352698013** Collected: 10/28/20 09:50 Received: 10/30/20 04:31 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	**0.286 ± 0.436 (0.750) C:NA T:94%**	pCi/L	11/23/20 12:57	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.380 ± 0.477 (1.01) C:65% T:85%**	pCi/L	11/19/20 14:21	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 422223
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2041021
Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.211 ± 0.360 (0.635) C:NA T:81%	pCi/L	11/23/20 12:57	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 422195
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009, 60352698010, 60352698011

METHOD BLANK: 2040878
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009, 60352698010, 60352698011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0558 ± 0.328 (0.670) C:NA T:91%	pCi/L	11/20/20 14:39	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 422197
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009, 60352698010, 60352698011

METHOD BLANK: 2040880
Matrix: Water
Associated Lab Samples: 60352698001, 60352698002, 60352698003, 60352698004, 60352698005, 60352698006, 60352698007, 60352698008, 60352698009, 60352698010, 60352698011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.488 ± 0.386 (0.763) C:70% T:86%	pCi/L	11/19/20 11:09	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA
Pace Project No.: 60352698

QC Batch: 422224
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352698012, 60352698013

METHOD BLANK: 2041023
Matrix: Water
Associated Lab Samples: 60352698012, 60352698013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.838 ± 0.416 (0.724) C:74% T:85%	pCi/L	11/19/20 11:09	

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QUALIFIERS

Project: AMEREN RCPA
Pace Project No.: 60352698

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.

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

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352698001	**R-MW-1**	EPA 200.7	689219	EPA 200.7	689280
60352698002	**R-MW-2**	EPA 200.7	689219	EPA 200.7	689280
60352698003	**R-MW-3**	EPA 200.7	689219	EPA 200.7	689280
60352698004	**R-MW-6**	EPA 200.7	689219	EPA 200.7	689280
60352698005	**R-MW-7 (r)**	EPA 200.7	689219	EPA 200.7	689280
60352698006	**R-MW-B1**	EPA 200.7	689219	EPA 200.7	689280
60352698007	**R-MW-B2**	EPA 200.7	689219	EPA 200.7	689280
60352698008	**R-DUP-1**	EPA 200.7	689219	EPA 200.7	689280
60352698009	**R-FB-1**	EPA 200.7	689219	EPA 200.7	689280
60352698012	**R-MW-4**	EPA 200.7	688410	EPA 200.7	688449
60352698013	**R-MW-5**	EPA 200.7	688410	EPA 200.7	688449
60352698001	**R-MW-1**	EPA 200.8	689221	EPA 200.8	689343
60352698002	**R-MW-2**	EPA 200.8	689221	EPA 200.8	689343
60352698003	**R-MW-3**	EPA 200.8	689221	EPA 200.8	689343
60352698004	**R-MW-6**	EPA 200.8	689221	EPA 200.8	689343
60352698005	**R-MW-7 (r)**	EPA 200.8	689221	EPA 200.8	689343
60352698006	**R-MW-B1**	EPA 200.8	689221	EPA 200.8	689343
60352698007	**R-MW-B2**	EPA 200.8	689221	EPA 200.8	689343
60352698008	**R-DUP-1**	EPA 200.8	689221	EPA 200.8	689343
60352698009	**R-FB-1**	EPA 200.8	689221	EPA 200.8	689343
60352698012	**R-MW-4**	EPA 200.8	688411	EPA 200.8	688450
60352698013	**R-MW-5**	EPA 200.8	688411	EPA 200.8	688450
60352698001	**R-MW-1**	EPA 903.1	422195		
60352698002	**R-MW-2**	EPA 903.1	422195		
60352698003	**R-MW-3**	EPA 903.1	422195		
60352698004	**R-MW-6**	EPA 903.1	422195		
60352698005	**R-MW-7 (r)**	EPA 903.1	422195		
60352698006	**R-MW-B1**	EPA 903.1	422195		
60352698007	**R-MW-B2**	EPA 903.1	422195		
60352698008	**R-DUP-1**	EPA 903.1	422195		
60352698009	**R-FB-1**	EPA 903.1	422195		
60352698010	**R-MW-1 MS**	EPA 903.1	422195		
60352698011	**R-MW-1 MSD**	EPA 903.1	422195		
60352698012	**R-MW-4**	EPA 903.1	422223		
60352698013	**R-MW-5**	EPA 903.1	422223		
60352698001	**R-MW-1**	EPA 904.0	422197		
60352698002	**R-MW-2**	EPA 904.0	422197		
60352698003	**R-MW-3**	EPA 904.0	422197		
60352698004	**R-MW-6**	EPA 904.0	422197		
60352698005	**R-MW-7 (r)**	EPA 904.0	422197		
60352698006	**R-MW-B1**	EPA 904.0	422197		
60352698007	**R-MW-B2**	EPA 904.0	422197		
60352698008	**R-DUP-1**	EPA 904.0	422197		
60352698009	**R-FB-1**	EPA 904.0	422197		
60352698010	**R-MW-1 MS**	EPA 904.0	422197		
60352698011	**R-MW-1 MSD**	EPA 904.0	422197		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA
Pace Project No.: 60352698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352698012	**R-MW-4**	EPA 904.0	422224		
60352698013	**R-MW-5**	EPA 904.0	422224		
60352698001	**R-MW-1**	SM 2320B	687066		
60352698002	**R-MW-2**	SM 2320B	687066		
60352698003	**R-MW-3**	SM 2320B	687334		
60352698004	**R-MW-6**	SM 2320B	687066		
60352698005	**R-MW-7 (r)**	SM 2320B	687066		
60352698006	**R-MW-B1**	SM 2320B	687066		
60352698007	**R-MW-B2**	SM 2320B	687334		
60352698008	**R-DUP-1**	SM 2320B	687066		
60352698009	**R-FB-1**	SM 2320B	687066		
60352698012	**R-MW-4**	SM 2320B	687335		
60352698013	**R-MW-5**	SM 2320B	687335		
60352698001	**R-MW-1**	SM 2540C	686004		
60352698002	**R-MW-2**	SM 2540C	686004		
60352698003	**R-MW-3**	SM 2540C	686937		
60352698004	**R-MW-6**	SM 2540C	686004		
60352698005	**R-MW-7 (r)**	SM 2540C	686004		
60352698006	**R-MW-B1**	SM 2540C	686004		
60352698007	**R-MW-B2**	SM 2540C	686937		
60352698008	**R-DUP-1**	SM 2540C	686004		
60352698009	**R-FB-1**	SM 2540C	686004		
60352698012	**R-MW-4**	SM 2540C	686937		
60352698013	**R-MW-5**	SM 2540C	686937		
60352698001	**R-MW-1**	EPA 300.0	689327		
60352698002	**R-MW-2**	EPA 300.0	689325		
60352698003	**R-MW-3**	EPA 300.0	689325		
60352698004	**R-MW-6**	EPA 300.0	689325		
60352698005	**R-MW-7 (r)**	EPA 300.0	689327		
60352698006	**R-MW-B1**	EPA 300.0	689327		
60352698007	**R-MW-B2**	EPA 300.0	689327		
60352698008	**R-DUP-1**	EPA 300.0	689327		
60352698009	**R-FB-1**	EPA 300.0	689327		
60352698012	**R-MW-4**	EPA 300.0	688350		
60352698013	**R-MW-5**	EPA 300.0	688350		

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Sample Condition Upon Receipt

WO# : 60352698

60352698

Client Name: Golder

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

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

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐ X 8

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

Thermometer Used: T296 **Type of Ice:** Wet Blue None ☒

Cooler Temperature (°C): **As-read** 1.4, 1.4 / 1.2, 0.8 **Corr. Factor** -0.4 **Corrected** 1.0, 1.0 / 0.8, 0.4

Date and initials of person examining contents: 10/28/20 HF

Temperature should be above freezing to 6°C 9.0, 9.1, 9.4, 10.0 NO ICE: 8.6, 8.7, 9.0, 9.6

Chain of Custody present:	☑Yes ☐No ☐N/A	The coolers w/ no ice were the ones that had Rad samples
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	COC: "R-mw-B2", container is labeled "R-Bwmw-2B" dates/times match.
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 403173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per Eric, mercury analysis not needed.

REVIEWED
By jchurch at 9:05 am, 10/29/20

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA Rush Island Energy Center
Project Number:	153-140602.0002A (COC #5)

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (60352098)
1	R-MW-1	WT	G			10/26/20	0943		5	3		12						Y	Y	Y	Y	Y	Y	Y			R-MS-1 + R-MSD-1
2	R-MW-2	WT	G			↓	1545		5	1		4						↓	↓	↓	↓	↓	↓	↓			
3	R-MW-3	WT	G			10/27/20	1555		5	1		4						↓	↓	↓	↓	↓	↓	↓			
4	R-MW-4	WT	G																								
5	R-MW-5	WT	G																								
6	R-MW-6	WT	G			10/26/20	1330		5	1		4						X	X	X	X	X	X	X			
7	R-MW-7 (r)	WT	G			↓	1155		↓	↓		↓															
8	R-MW-B1	WT	G				1426		5	1		4															
9	R-MW-B2	WT	G			10/27	1507		5	1		4															
10	R-DUP-1	WT	G			10/26/20	—		5	1		4															
11	R-FB-1	WT	G			↓	1405		↓	↓		↓						↓	↓	↓	↓	↓	↓	↓			
12		WT	G																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert / Golder	10/27/20	1830	Harry Fourman / PASI	10/28/20	0410	0.0, 1.0, 1.0 Y Y Y
**EPA 200.7: Ba, Co, Pb, Li, Mo **EPA 200.8: Sb, As, Cd, Cr, Se							0.8, 0.4 ↓ ↓ ↓
							8.6, 8.7 N Y Y
							9.0, 9.6 ↓ ↓ ↓
							Temp in °C / Received on Ice (Y/N) / Custody Sealed Cooler (Y/N) / Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/27/2020

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

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

Pace Analytical®
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Sample Condition Upon Receipt

WO# : 60352698

60352698

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: T-299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.1 **Corr. Factor** +0.2 **Corrected** 1.3

Date and initials of person examining contents: PV 10/30/20

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

REVIEWED
By jchurch at 2:44 pm, 11/2/20

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA Rush Island Energy Center
Project Number:	153-140602.0002A (COC #5)

Section C
Invoice Information:

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

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

Site Location STATE: MO

Section D
Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60352698
																		N	N	N	N	N	N	N	N					
1	R-MW-1	WT	G																											
2	R-MW-2	WT	G																											
3	R-MW-3	WT	G																											
4	R-MW-4	WT	G			10/28/20	1200		5	1		4						/	/	/	/	/	/	/	/	2	BP3N		BP1N 2BP1N	0.12
5	R-MW-5	WT	G			10/28/20	0950		5	1		4						/	/	/	/	/	/	/	/		↓		↓ ↓	0.13
6	R-MW-6	WT	G																											
7	R-MW-7 (r)	WT	G																											
8	R-MW-B1	WT	G																											
9	R-MW-B2	WT	G																											
10	R-DUP-1	WT	G																											
11	R-FB-1	WT	G																											
12		WT	G																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] / Golder	10/29/20	1000	[signature] / PASL	10/30/20	0431	1.3	Y	Y	Y
**EPA 200.7: Ba, Co, Pb, Li, Mo **EPA 200.8: Sb, As, Cd, Cr, Se										

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Eric Schneider				
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 10/29/20			

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

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

MEMORANDUM

DATE December 10, 2020 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA – DETECTION MONITORING AND ASSESSMENT MONITORING - DATA PACKAGE 60352698REV1

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

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

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

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 12/10/2020

Laboratory: Pace Analytical
SDG #: 60352698rev1
Analytical Method (type and no.): EPA 200.7/200.8 (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 R-MW-1, R-MW-2, R-MW-3, R-MW-6, R-MW-7 (r), R-MW-B1, R-MW-B2, R-DUP-1, R-FB-1, R-MW-1 MS, R-MW-1 MSD, R-MW-4, R-MW-5

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			10/26/2020 - 10/28/2020
b) Sampling team indicated?	x			EMS/BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?		x		See Notes
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	x			See Notes
b) Were analytes detected in the field blank(s)?		x		R-FB-1 @ R-MW-6
c) Were analytes detected in the equipment blank(s)?			x	
d) Were analytes detected in the trip blank(s)?			x	

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			R-DUP-1 @ R-MW-7 (r)
b) Were field dup. precision criteria met (note RPD)?	x			Max RPD: 11.1% (<20%)
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			See Notes
d) Were lab dup. precision criteria met (note RPD)?	x			Max RPD: 6% (<10%)

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

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

Comments/Notes:

For YSI STL0125, ORP calibration took 2 hours to stabilize and was out of range (122.4 mV). Data consistent with historical data, no qualification necessary.

Sample identified as "R-MW-B2" on COC, container is labeled "R-BWMW-2B", dates and times matched.

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

Sample collection times were not present on sample containers for R-MW-7 (r) and R-DUP-1

The sample condition form notes that the radium cooler had no ice, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

MB: 2785160: Chloride (0.56J), associated with samples -002 through -004, detections in sample >10x blank result, no qualification necessary.

2786248: Chloride (0.56J), associated with samples -002 through -004, detections in sample >10x blank result, no qualification necessary.

MB (continued): 2041023: Radium-228 (0.838 ± 0.416 (0.724)), associated with samples -012 and -013, sample results non-detect, no qualification necessary.

MS/MSD:

2784893/2784894: MSD % recovery high for Calcium, Sodium, associated with sample -001.

2782041/2782042: MS % recovery high for Chloride, Sulfate, MSD % recovery high for Sulfate, associated with sample 60353027001 (unrelated sample).

2782043: MS % recovery high for Chloride and Sulfate, associated with sample 60353036003 (unrelated sample).

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-MW-1	Calcium	151000	J	MSD % recovery high
"	Sodium	130000	J	"

Signature: Ann Muhlfeldt Date: 12/10/2020

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

November 24, 2020

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

RE: Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory between October 28, 2020 and October 30, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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

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CERTIFICATIONS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Pace Analytical Services Pennsylvania

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

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60352696001	**R-P10S**	Water	10/26/20 15:35	10/28/20 04:10
60352696002	**R-P16S**	Water	10/26/20 11:00	10/28/20 04:10
60352696003	**R-P17S**	Water	10/26/20 13:10	10/28/20 04:10
60352696004	**R-P17I**	Water	10/26/20 11:58	10/28/20 04:10
60352696005	**R-P17D**	Water	10/26/20 14:04	10/28/20 04:10
60352696006	**R-P19S**	Water	10/27/20 14:55	10/28/20 04:10
60352696007	**R-P19I**	Water	10/27/20 14:05	10/28/20 04:10
60352696008	**R-P19D**	Water	10/27/20 13:30	10/28/20 04:10
60352696009	**R-P21S**	Water	10/27/20 12:10	10/28/20 04:10
60352696010	**R-P21I**	Water	10/27/20 11:30	10/28/20 04:10
60352696011	**R-P21D**	Water	10/27/20 10:30	10/28/20 04:10
60352696012	**R-P29S**	Water	10/27/20 11:58	10/28/20 04:10
60352696013	**R-P29D**	Water	10/27/20 11:20	10/28/20 04:10
60352696014	**R-CA-DUP-1**	Water	10/26/20 08:00	10/28/20 04:10
60352696015	**R-CA-DUP-2**	Water	10/26/20 08:00	10/28/20 04:10
60352696016	**R-CA-FB-1**	Water	10/26/20 14:00	10/28/20 04:10
60352696017	**R-CA-FB-2**	Water	10/27/20 11:18	10/28/20 04:10
60352696018	**R-P17I MS**	Water	10/26/20 11:58	10/28/20 04:10
60352696019	**R-P17I MSD**	Water	10/26/20 11:58	10/28/20 04:10
60352696020	**R-P05S**	Water	10/28/20 14:02	10/30/20 04:31
60352696021	**R-P22S**	Water	10/28/20 10:15	10/30/20 04:31
60352696022	**R-P22D**	Water	10/28/20 09:25	10/30/20 04:31
60352696023	**R-P30S**	Water	10/28/20 14:55	10/30/20 04:31

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60352696001	**R-P10S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696002	**R-P16S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696003	**R-P17S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696004	**R-P17I**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696005	**R-P17D**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696006	**R-P19S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696007	**R-P19I**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696008	**R-P19D**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696009	**R-P21S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696010	**R-P21I**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696011	**R-P21D**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696012	**R-P29S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696013	**R-P29D**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696014	**R-CA-DUP-1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696015	**R-CA-DUP-2**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696016	**R-CA-FB-1**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	LDB	3	PASI-K
60352696017	**R-CA-FB-2**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	LDB	3	PASI-K
60352696018	**R-P17I MS**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60352696019	**R-P17I MSD**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60352696020	**R-P05S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	VRP	3	PASI-K
60352696021	**R-P22S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	VRP	3	PASI-K
60352696022	**R-P22D**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	VRP	3	PASI-K
60352696023	**R-P30S**	EPA 200.7	JLH	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

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

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

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P10S **Lab ID: 60352696001** Collected: 10/26/20 15:35 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**133**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 14:35	7440-39-3	
Boron	**2260**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 14:35	7440-42-8	
Calcium	**57800**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 14:35	7440-70-2	
Cobalt	**1.5J**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 14:35	7440-48-4	
Iron	**1910**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 14:35	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:35	7439-92-1	
Lithium	**12.2**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:35	7439-93-2	
Magnesium	**8720**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 14:35	7439-95-4	
Manganese	**869**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 14:35	7439-96-5	
Molybdenum	**101**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 14:35	7439-98-7	
Potassium	**3850**	ug/L	500	189	1	11/13/20 13:15	11/16/20 14:35	7440-09-7	
Sodium	**97800**	ug/L	500	107	1	11/13/20 13:15	11/16/20 14:35	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.11J**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:34	7440-36-0	
Arsenic	**10.5**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:34	7440-38-2	
Cadmium	**0.070J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:34	7440-43-9	
Chromium	**0.32J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:34	7440-47-3	
Selenium	**0.20J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:34	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**258**	mg/L	20.0	8.4	1		11/04/20 10:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**500**	mg/L	10.0	10.0	1		10/29/20 13:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**19.4**	mg/L	2.0	0.78	2		11/16/20 22:08	16887-00-6	
Fluoride	**0.58**	mg/L	0.20	0.075	1		11/14/20 10:32	16984-48-8	
Sulfate	**140**	mg/L	20.0	5.6	20		11/14/20 10:47	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P16S **Lab ID: 60352696002** Collected: 10/26/20 11:00 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**81.7**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 14:38	7440-39-3	
Boron	**3420**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 14:38	7440-42-8	
Calcium	**430000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 14:38	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 14:38	7440-48-4	
Iron	**85.8**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 14:38	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:38	7439-92-1	
Lithium	**65.1**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:38	7439-93-2	
Magnesium	**84800**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 14:38	7439-95-4	
Manganese	**134**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 14:38	7439-96-5	
Molybdenum	**11.0J**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 14:38	7439-98-7	
Potassium	**10400**	ug/L	500	189	1	11/13/20 13:15	11/16/20 14:38	7440-09-7	
Sodium	**118000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 14:38	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:36	7440-36-0	
Arsenic	**1.2**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:36	7440-38-2	
Cadmium	**0.22J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:36	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:36	7440-47-3	
Selenium	**0.34J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:36	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**685**	mg/L	20.0	8.4	1		11/04/20 10:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**2200**	mg/L	40.0	40.0	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**153**	mg/L	10.0	3.9	10		11/14/20 11:16	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.075	1		11/14/20 11:01	16984-48-8	
Sulfate	**857**	mg/L	100	27.8	100		11/16/20 22:23	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17S **Lab ID: 60352696003** Collected: 10/26/20 13:10 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**85.7**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 14:57	7440-39-3	
Boron	**1460**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 14:57	7440-42-8	
Calcium	**104000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 14:57	7440-70-2	
Cobalt	**5.9**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 14:57	7440-48-4	
Iron	**824**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 14:57	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:57	7439-92-1	
Lithium	**24.5**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:57	7439-93-2	
Magnesium	**23600**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 14:57	7439-95-4	
Manganese	**2210**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 14:57	7439-96-5	
Molybdenum	**36.3**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 14:57	7439-98-7	
Potassium	**3110**	ug/L	500	189	1	11/13/20 13:15	11/16/20 14:57	7440-09-7	
Sodium	**165000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 14:57	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	0.097	1	11/13/20 14:50	11/16/20 16:38	7440-36-0	
Arsenic	**27.6**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:38	7440-38-2	
Cadmium	**0.077J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:38	7440-43-9	
Chromium	**0.27J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:38	7440-47-3	
Selenium	**0.55J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:38	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**565**	mg/L	20.0	8.4	1		11/04/20 11:04		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**911**	mg/L	13.3	13.3	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**45.5**	mg/L	5.0	1.9	5		11/14/20 11:59	16887-00-6	
Fluoride	**0.69**	mg/L	0.20	0.075	1		11/14/20 11:44	16984-48-8	
Sulfate	**155**	mg/L	20.0	5.6	20		11/14/20 12:13	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17I **Lab ID: 60352696004** Collected: 10/26/20 11:58 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**15.2**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 14:59	7440-39-3	
Boron	**2010**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 14:59	7440-42-8	
Calcium	**9700**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 14:59	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 14:59	7440-48-4	
Iron	**293**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 14:59	7439-89-6	
Lead	**15.5**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:59	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 14:59	7439-93-2	
Magnesium	**421**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 14:59	7439-95-4	
Manganese	**7.7**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 14:59	7439-96-5	
Molybdenum	**92.8**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 14:59	7439-98-7	
Potassium	**1770**	ug/L	500	189	1	11/13/20 13:15	11/16/20 14:59	7440-09-7	
Sodium	**182000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 14:59	7440-23-5	M1
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.46J**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:40	7440-36-0	
Arsenic	**56.5**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:40	7440-38-2	
Cadmium	**0.52**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:40	7440-43-9	
Chromium	**0.78J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:40	7440-47-3	
Selenium	**1.6**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:40	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**198**	mg/L	20.0	8.4	1		11/04/20 11:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**752**	mg/L	10.0	10.0	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**25.1**	mg/L	2.0	0.78	2		11/14/20 13:40	16887-00-6	
Fluoride	**2.2**	mg/L	0.20	0.075	1		11/14/20 12:56	16984-48-8	
Sulfate	**303**	mg/L	20.0	5.6	20		11/14/20 14:23	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17D **Lab ID: 60352696005** Collected: 10/26/20 14:04 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**99.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:06	7440-39-3	
Boron	**7730**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:06	7440-42-8	
Calcium	**46600**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:06	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:06	7440-48-4	
Iron	**2740**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:06	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:06	7439-92-1	
Lithium	**39.5**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:06	7439-93-2	
Magnesium	**10300**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:06	7439-95-4	
Manganese	**418**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:06	7439-96-5	
Molybdenum	**718**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:06	7439-98-7	
Potassium	**7130**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:06	7440-09-7	
Sodium	**122000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 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	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:46	7440-36-0	
Arsenic	**1.1**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:46	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:46	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:46	7440-47-3	
Selenium	**0.27J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:46	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**133**	mg/L	20.0	8.4	1		11/04/20 11:30		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**611**	mg/L	10.0	10.0	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**29.1**	mg/L	5.0	1.9	5		11/14/20 15:50	16887-00-6	
Fluoride	**0.73**	mg/L	0.20	0.075	1		11/14/20 15:06	16984-48-8	
Sulfate	**303**	mg/L	50.0	13.9	50		11/14/20 16:04	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19S **Lab ID: 60352696006** Collected: 10/27/20 14:55 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**577**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:09	7440-39-3	
Boron	**1650**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:09	7440-42-8	
Calcium	**227000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:09	7440-70-2	
Cobalt	**3.3J**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:09	7440-48-4	
Iron	**11800**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:09	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:09	7439-92-1	
Lithium	**40.9**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:09	7439-93-2	
Magnesium	**41000**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:09	7439-95-4	
Manganese	**1550**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:09	7439-96-5	
Molybdenum	**15.0J**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:09	7439-98-7	
Potassium	**8690**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:09	7440-09-7	
Sodium	**47200**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:09	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	0.097	1	11/13/20 14:50	11/16/20 16:48	7440-36-0	
Arsenic	**21.1**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:48	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:48	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:48	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:48	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**820**	mg/L	20.0	8.4	1		11/05/20 11:24		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**959**	mg/L	13.3	13.3	1		11/03/20 14:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**32.6**	mg/L	5.0	1.9	5		11/14/20 16:33	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	0.075	1		11/14/20 16:19	16984-48-8	
Sulfate	**74.7**	mg/L	5.0	1.4	5		11/14/20 16:33	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19I **Lab ID: 60352696007** Collected: 10/27/20 14:05 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**11.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:11	7440-39-3	
Boron	**4890**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:11	7440-42-8	
Calcium	**6480**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:11	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:11	7440-48-4	
Iron	**77.4**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:11	7439-89-6	
Lead	**16.3**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:11	7439-92-1	
Lithium	**14.0**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:11	7439-93-2	
Magnesium	**42.1J**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:11	7439-95-4	
Manganese	**3.2J**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:11	7439-96-5	
Molybdenum	**222**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:11	7439-98-7	
Potassium	**11700**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:11	7440-09-7	
Sodium	**258000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:11	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**4.9**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:54	7440-36-0	
Arsenic	**257**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:54	7440-38-2	
Cadmium	**0.43J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:54	7440-43-9	
Chromium	**0.31J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:54	7440-47-3	
Selenium	**3.1**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:54	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**308**	mg/L	20.0	8.4	1		11/05/20 11:29		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1060**	mg/L	13.3	13.3	1		11/03/20 14:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**24.0**	mg/L	5.0	1.9	5		11/14/20 17:02	16887-00-6	B
Fluoride	**1.6**	mg/L	0.20	0.075	1		11/14/20 16:47	16984-48-8	
Sulfate	**300**	mg/L	50.0	13.9	50		11/16/20 22:37	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19D **Lab ID: 60352696008** Collected: 10/27/20 13:30 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**84.7**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:19	7440-39-3	
Boron	**10600**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:19	7440-42-8	
Calcium	**28100**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:19	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:19	7440-48-4	
Iron	**1640**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:19	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:19	7439-92-1	
Lithium	**14.7**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:19	7439-93-2	
Magnesium	**4010**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:19	7439-95-4	
Manganese	**218**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:19	7439-96-5	
Molybdenum	**869**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:19	7439-98-7	
Potassium	**3210**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:19	7440-09-7	
Sodium	**172000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:19	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:56	7440-36-0	
Arsenic	**0.62J**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:56	7440-38-2	
Cadmium	**0.059J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:56	7440-43-9	
Chromium	**0.37J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:56	7440-47-3	
Selenium	**0.31J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:56	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**220**	mg/L	20.0	8.4	1		11/05/20 11:34		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**655**	mg/L	10.0	10.0	1		11/03/20 14:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**27.1**	mg/L	5.0	1.9	5		11/14/20 17:31	16887-00-6	B
Fluoride	**2.2**	mg/L	0.20	0.075	1		11/14/20 17:16	16984-48-8	
Sulfate	**230**	mg/L	20.0	5.6	20		11/14/20 17:45	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21S **Lab ID: 60352696009** Collected: 10/27/20 12:10 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**332**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:22	7440-39-3	
Boron	**944**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:22	7440-42-8	
Calcium	**153000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:22	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:22	7440-48-4	
Iron	**28900**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:22	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:22	7439-92-1	
Lithium	**15.1**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:22	7439-93-2	
Magnesium	**46600**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:22	7439-95-4	
Manganese	**1640**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:22	7439-96-5	
Molybdenum	**8.0J**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:22	7439-98-7	
Potassium	**4390**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:22	7440-09-7	
Sodium	**34000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:22	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 16:58	7440-36-0	
Arsenic	**121**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 16:58	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 16:58	7440-43-9	
Chromium	**0.24J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 16:58	7440-47-3	
Selenium	**0.32J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 16:58	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**661**	mg/L	20.0	8.4	1		11/05/20 11:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**711**	mg/L	10.0	10.0	1		11/03/20 14:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**33.3**	mg/L	5.0	1.9	5		11/14/20 18:43	16887-00-6	
Fluoride	**0.48**	mg/L	0.20	0.075	1		11/14/20 18:00	16984-48-8	
Sulfate	**11.3**	mg/L	1.0	0.28	1		11/14/20 18:00	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21I **Lab ID: 60352696010** Collected: 10/27/20 11:30 Received: 10/28/20 04:10 Matrix: Water

Comments: • Sample collection time on containers does not match COC; client was notified.

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	**37.4**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:24	7440-39-3	
Boron	**2200**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:24	7440-42-8	
Calcium	**19600**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:24	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:24	7440-48-4	
Iron	**270**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:24	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:24	7439-92-1	
Lithium	**19.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:24	7439-93-2	
Magnesium	**2430**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:24	7439-95-4	
Manganese	**58.6**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:24	7439-96-5	
Molybdenum	**83.2**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:24	7439-98-7	
Potassium	**4720**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:24	7440-09-7	
Sodium	**97700**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:24	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:00	7440-36-0	
Arsenic	**5.0**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:00	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:00	7440-43-9	
Chromium	**0.22J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:00	7440-47-3	
Selenium	**0.41J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:00	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**154**	mg/L	20.0	8.4	1		11/05/20 11:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**363**	mg/L	5.0	5.0	1		11/03/20 14:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**32.7**	mg/L	10.0	3.9	10		11/14/20 19:26	16887-00-6	B
Fluoride	**1.1**	mg/L	0.20	0.075	1		11/14/20 18:57	16984-48-8	
Sulfate	**85.0**	mg/L	10.0	2.8	10		11/14/20 19:26	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21D **Lab ID: 60352696011** Collected: 10/27/20 10:30 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**109**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:27	7440-39-3	
Boron	**5360**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:27	7440-42-8	
Calcium	**91900**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:27	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:27	7440-48-4	
Iron	**2350**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:27	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:27	7439-92-1	
Lithium	**140**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:27	7439-93-2	
Magnesium	**29000**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:27	7439-95-4	
Manganese	**628**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:27	7439-96-5	
Molybdenum	**374**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:27	7439-98-7	
Potassium	**7740**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:27	7440-09-7	
Sodium	**330000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:27	7440-23-5	M1
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:02	7440-36-0	
Arsenic	**0.55J**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:02	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:02	7440-43-9	
Chromium	**0.22J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:02	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:02	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**250**	mg/L	20.0	8.4	1		11/05/20 11:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1440**	mg/L	20.0	20.0	1		11/03/20 14:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**610**	mg/L	50.0	19.4	50		11/14/20 20:24	16887-00-6	
Fluoride	**1.4**	mg/L	0.20	0.075	1		11/14/20 19:55	16984-48-8	
Sulfate	**132**	mg/L	10.0	2.8	10		11/14/20 20:10	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P29S **Lab ID: 60352696012** Collected: 10/27/20 11:58 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**521**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:32	7440-39-3	
Boron	**91.4J**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:32	7440-42-8	
Calcium	**200000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:32	7440-70-2	
Cobalt	**4.9J**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:32	7440-48-4	
Iron	**9390**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:32	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:32	7439-92-1	
Lithium	**44.3**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:32	7439-93-2	
Magnesium	**48000**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:32	7439-95-4	
Manganese	**520**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:32	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:32	7439-98-7	
Potassium	**6460**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:32	7440-09-7	
Sodium	**19300**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:32	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.11J**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:04	7440-36-0	
Arsenic	**15.3**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:04	7440-38-2	
Cadmium	**0.080J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:04	7440-43-9	
Chromium	**0.23J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:04	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:04	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**285**	mg/L	20.0	8.4	1		11/05/20 12:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**881**	mg/L	13.3	13.3	1		11/03/20 14:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**24.9**	mg/L	2.0	0.78	2		11/16/20 22:52	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.075	1		11/14/20 20:38	16984-48-8	
Sulfate	**89.5**	mg/L	10.0	2.8	10		11/16/20 23:06	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P29D **Lab ID: 60352696013** Collected: 10/27/20 11:20 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**138**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:34	7440-39-3	
Boron	**85.3J**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:34	7440-42-8	
Calcium	**84000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:34	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:34	7440-48-4	
Iron	**3810**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:34	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:34	7439-92-1	
Lithium	**33.4**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:34	7439-93-2	
Magnesium	**24000**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:34	7439-95-4	
Manganese	**143**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:34	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:34	7439-98-7	
Potassium	**4100**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:34	7440-09-7	
Sodium	**53700**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:34	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.34J**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:08	7440-36-0	
Arsenic	**0.97J**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:08	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:08	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:08	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:08	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**328**	mg/L	20.0	8.4	1		11/05/20 12:06		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**487**	mg/L	10.0	10.0	1		11/03/20 14:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**83.4**	mg/L	5.0	1.9	5		11/14/20 21:36	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.075	1		11/14/20 20:53	16984-48-8	
Sulfate	**22.8**	mg/L	5.0	1.4	5		11/14/20 21:36	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-DUP-1 **Lab ID: 60352696014** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**93.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:37	7440-39-3	
Boron	**1590**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:37	7440-42-8	
Calcium	**113000**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:37	7440-70-2	
Cobalt	**6.7**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:37	7440-48-4	
Iron	**931**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:37	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:37	7439-92-1	
Lithium	**32.9**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:37	7439-93-2	
Magnesium	**25600**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:37	7439-95-4	
Manganese	**2400**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:37	7439-96-5	
Molybdenum	**40.0**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:37	7439-98-7	
Potassium	**3380**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:37	7440-09-7	
Sodium	**177000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:37	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	0.097	1	11/13/20 14:50	11/16/20 17:10	7440-36-0	
Arsenic	**28.0**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:10	7440-38-2	
Cadmium	**0.092J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:10	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:10	7440-47-3	
Selenium	**0.52J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:10	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**572**	mg/L	20.0	8.4	1		11/04/20 11:35		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**919**	mg/L	13.3	13.3	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**46.8**	mg/L	10.0	3.9	10		11/14/20 22:20	16887-00-6	B
Fluoride	**0.59**	mg/L	0.20	0.075	1		11/14/20 22:05	16984-48-8	
Sulfate	**164**	mg/L	10.0	2.8	10		11/14/20 22:20	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-DUP-2 **Lab ID: 60352696015** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**126**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:39	7440-39-3	
Boron	**2450**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:39	7440-42-8	
Calcium	**51200**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:39	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:39	7440-48-4	
Iron	**2300**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:39	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:39	7439-92-1	
Lithium	**10.1**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:39	7439-93-2	
Magnesium	**7720**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:39	7439-95-4	
Manganese	**746**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:39	7439-96-5	
Molybdenum	**109**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:39	7439-98-7	
Potassium	**3730**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:39	7440-09-7	
Sodium	**104000**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:39	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:12	7440-36-0	
Arsenic	**11.1**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:12	7440-38-2	
Cadmium	**0.078J**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:12	7440-43-9	
Chromium	**0.59J**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:12	7440-47-3	
Selenium	**0.21J**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:12	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**238**	mg/L	20.0	8.4	1		11/04/20 11:40		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**522**	mg/L	10.0	10.0	1		10/29/20 13:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**19.1**	mg/L	2.0	0.78	2		11/16/20 23:49	16887-00-6	
Fluoride	**0.60**	mg/L	0.20	0.075	1		11/14/20 22:34	16984-48-8	
Sulfate	**156**	mg/L	10.0	2.8	10		11/14/20 22:48	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-FB-1 **Lab ID: 60352696016** Collected: 10/26/20 14:00 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:42	7440-39-3	
Boron	**<11.7**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:42	7440-42-8	
Calcium	**66.9J**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:42	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:42	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:42	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:42	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:42	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:42	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:42	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:42	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:42	7440-09-7	
Sodium	**116J**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:42	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:18	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:18	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:18	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:18	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:18	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		11/04/20 11:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		10/29/20 13:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**<0.39**	mg/L	1.0	0.39	1		11/14/20 23:17	16887-00-6	
Fluoride	**<0.075**	mg/L	0.20	0.075	1		11/14/20 23:17	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		11/14/20 23:17	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-FB-2 **Lab ID: 60352696017** Collected: 10/27/20 11:18 Received: 10/28/20 04:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
	Pace Analytical Services - Kansas City								
Barium	**<1.8**	ug/L	5.0	1.8	1	11/13/20 13:15	11/16/20 15:52	7440-39-3	
Boron	**<11.7**	ug/L	100	11.7	1	11/13/20 13:15	11/16/20 15:52	7440-42-8	
Calcium	**<32.4**	ug/L	200	32.4	1	11/13/20 13:15	11/16/20 15:52	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/13/20 13:15	11/16/20 15:52	7440-48-4	
Iron	**<26.8**	ug/L	50.0	26.8	1	11/13/20 13:15	11/16/20 15:52	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:52	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	11/13/20 13:15	11/16/20 15:52	7439-93-2	
Magnesium	**<19.7**	ug/L	50.0	19.7	1	11/13/20 13:15	11/16/20 15:52	7439-95-4	
Manganese	**<0.97**	ug/L	5.0	0.97	1	11/13/20 13:15	11/16/20 15:52	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/13/20 13:15	11/16/20 15:52	7439-98-7	
Potassium	**<189**	ug/L	500	189	1	11/13/20 13:15	11/16/20 15:52	7440-09-7	
Sodium	**<107**	ug/L	500	107	1	11/13/20 13:15	11/16/20 15:52	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/13/20 14:50	11/16/20 17:20	7440-36-0	
Arsenic	**<0.086**	ug/L	1.0	0.086	1	11/13/20 14:50	11/16/20 17:20	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/13/20 14:50	11/16/20 17:20	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/13/20 14:50	11/16/20 17:20	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/13/20 14:50	11/16/20 17:20	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**<8.4**	mg/L	20.0	8.4	1		11/05/20 12:19		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**5.5**	mg/L	5.0	5.0	1		11/03/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**0.57J**	mg/L	1.0	0.39	1		11/14/20 23:32	16887-00-6	B
Fluoride	**<0.075**	mg/L	0.20	0.075	1		11/14/20 23:32	16984-48-8	
Sulfate	**<0.28**	mg/L	1.0	0.28	1		11/14/20 23:32	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P05S **Lab ID: 60352696020** Collected: 10/28/20 14:02 Received: 10/30/20 04:31 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	1.8	1	11/10/20 15:45	11/11/20 10:28	7440-39-3	
Boron	**4310**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:28	7440-42-8	
Calcium	**69400**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:28	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:28	7440-48-4	
Iron	**10300**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:28	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:28	7439-92-1	
Lithium	**16.1**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:28	7439-93-2	
Magnesium	**20800**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:28	7439-95-4	
Manganese	**298**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:28	7439-96-5	
Molybdenum	**20.1**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:28	7439-98-7	
Potassium	**5790**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:28	7440-09-7	
Sodium	**38200**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:28	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 05:50	7440-36-0	
Arsenic	**160**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 05:50	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 05:50	7440-43-9	
Chromium	**0.39J**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 05:50	7440-47-3	
Selenium	**0.25J**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 05:50	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**282**	mg/L	20.0	8.4	1		11/05/20 13:51		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**405**	mg/L	10.0	10.0	1		11/03/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**27.0**	mg/L	2.0	0.78	2		11/11/20 03:55	16887-00-6	
Fluoride	**0.52**	mg/L	0.20	0.075	1		11/11/20 03:39	16984-48-8	
Sulfate	**39.8**	mg/L	5.0	1.4	5		11/11/20 16:32	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P22S **Lab ID: 60352696021** Collected: 10/28/20 10:15 Received: 10/30/20 04:31 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	**180**	ug/L	5.0	1.8	1	11/10/20 15:45	11/11/20 10:36	7440-39-3	
Boron	**558**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:36	7440-42-8	
Calcium	**222000**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:36	7440-70-2	
Cobalt	**2.5J**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:36	7440-48-4	
Iron	**796**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:36	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:36	7439-92-1	
Lithium	**50.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:36	7439-93-2	
Magnesium	**51900**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:36	7439-95-4	
Manganese	**620**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:36	7439-96-5	
Molybdenum	**10.3J**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:36	7439-98-7	
Potassium	**7920**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:36	7440-09-7	
Sodium	**57900**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:36	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 05:51	7440-36-0	
Arsenic	**1.1**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 05:51	7440-38-2	
Cadmium	**0.13J**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 05:51	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 05:51	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 05:51	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**607**	mg/L	20.0	8.4	1		11/05/20 13:59		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**1060**	mg/L	13.3	13.3	1		11/03/20 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**50.0**	mg/L	10.0	3.9	10		11/11/20 04:25	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	0.075	1		11/11/20 04:10	16984-48-8	
Sulfate	**248**	mg/L	20.0	5.6	20		11/11/20 04:41	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P22D **Lab ID: 60352696022** Collected: 10/28/20 09:25 Received: 10/30/20 04:31 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	**75.6**	ug/L	5.0	1.8	1	11/10/20 15:45	11/11/20 10:38	7440-39-3	
Boron	**9300**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:38	7440-42-8	
Calcium	**24600**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:38	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:38	7440-48-4	
Iron	**1270**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:38	7439-89-6	
Lead	**5.2J**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:38	7439-92-1	
Lithium	**25.3**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:38	7439-93-2	
Magnesium	**3240**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:38	7439-95-4	
Manganese	**82.5**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:38	7439-96-5	
Molybdenum	**361**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:38	7439-98-7	
Potassium	**4690**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:38	7440-09-7	
Sodium	**170000**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:38	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**0.11J**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 05:56	7440-36-0	
Arsenic	**9.0**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 05:56	7440-38-2	
Cadmium	**0.092J**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 05:56	7440-43-9	
Chromium	**1.2**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 05:56	7440-47-3	
Selenium	**0.85J**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 05:56	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**283**	mg/L	20.0	8.4	1		11/05/20 14:04		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**590**	mg/L	10.0	10.0	1		11/03/20 14:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**30.8**	mg/L	5.0	1.9	5		11/11/20 05:11	16887-00-6	
Fluoride	**2.4**	mg/L	0.20	0.075	1		11/11/20 04:56	16984-48-8	
Sulfate	**98.6**	mg/L	5.0	1.4	5		11/11/20 05:11	14808-79-8	

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P30S **Lab ID: 60352696023** Collected: 10/28/20 14:55 Received: 10/30/20 04:31 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	**106**	ug/L	5.0	1.8	1	11/10/20 15:45	11/11/20 10:41	7440-39-3	
Boron	**810**	ug/L	100	11.7	1	11/10/20 15:45	11/11/20 10:41	7440-42-8	
Calcium	**154000**	ug/L	200	32.4	1	11/10/20 15:45	11/11/20 10:41	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	11/10/20 15:45	11/11/20 10:41	7440-48-4	
Iron	**1320**	ug/L	50.0	26.8	1	11/10/20 15:45	11/11/20 10:41	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:41	7439-92-1	
Lithium	**34.5**	ug/L	10.0	4.6	1	11/10/20 15:45	11/11/20 10:41	7439-93-2	
Magnesium	**26700**	ug/L	50.0	19.7	1	11/10/20 15:45	11/11/20 10:41	7439-95-4	
Manganese	**213**	ug/L	5.0	0.97	1	11/10/20 15:45	11/11/20 10:41	7439-96-5	
Molybdenum	**<1.7**	ug/L	20.0	1.7	1	11/10/20 15:45	11/11/20 10:41	7439-98-7	
Potassium	**6310**	ug/L	500	189	1	11/10/20 15:45	11/11/20 10:41	7440-09-7	
Sodium	**58800**	ug/L	500	107	1	11/10/20 15:45	11/11/20 10:41	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	11/10/20 15:45	11/12/20 05:58	7440-36-0	
Arsenic	**3.1**	ug/L	1.0	0.086	1	11/10/20 15:45	11/12/20 05:58	7440-38-2	
Cadmium	**0.061J**	ug/L	0.50	0.056	1	11/10/20 15:45	11/12/20 05:58	7440-43-9	
Chromium	**<0.22**	ug/L	1.0	0.22	1	11/10/20 15:45	11/12/20 05:58	7440-47-3	
Selenium	**1.6**	ug/L	1.0	0.18	1	11/10/20 15:45	11/12/20 05:58	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**421**	mg/L	20.0	8.4	1		11/05/20 14:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**697**	mg/L	10.0	10.0	1		11/03/20 14:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**37.9**	mg/L	5.0	1.9	5		11/11/20 05:42	16887-00-6	
Fluoride	**0.44**	mg/L	0.20	0.075	1		11/11/20 05:27	16984-48-8	
Sulfate	**149**	mg/L	10.0	2.8	10		11/11/20 00:07	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 688410
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2782186 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	11/11/20 10:24	
Boron	ug/L	<11.7	100	11.7	11/11/20 10:24	
Calcium	ug/L	<32.4	200	32.4	11/11/20 10:24	
Cobalt	ug/L	<1.5	5.0	1.5	11/11/20 10:24	
Iron	ug/L	<26.8	50.0	26.8	11/11/20 10:24	
Lead	ug/L	<4.6	10.0	4.6	11/11/20 10:24	
Lithium	ug/L	<4.6	10.0	4.6	11/11/20 10:24	
Magnesium	ug/L	<19.7	50.0	19.7	11/11/20 10:24	
Manganese	ug/L	<0.97	5.0	0.97	11/11/20 10:24	
Molybdenum	ug/L	<1.7	20.0	1.7	11/11/20 10:24	
Potassium	ug/L	<189	500	189	11/11/20 10:24	
Sodium	ug/L	<107	500	107	11/11/20 10:24	

LABORATORY CONTROL SAMPLE: 2782187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1000	100	85-115	
Boron	ug/L	1000	985	99	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	1040	104	85-115	
Iron	ug/L	10000	10400	104	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Magnesium	ug/L	10000	9850	98	85-115	
Manganese	ug/L	1000	992	99	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	
Potassium	ug/L	10000	10200	102	85-115	
Sodium	ug/L	10000	9900	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782188 2782189

Parameter	Units	60352696020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	185	1000	1000	1180	1190	99	100	70-130	1	20	
Boron	ug/L	4310	1000	1000	5190	5130	88	82	70-130	1	20	
Calcium	ug/L	69400	10000	10000	77700	78000	83	86	70-130	0	20	
Cobalt	ug/L	<1.5	1000	1000	1000	1000	100	100	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782188 2782189

Parameter	Units	60352696020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	10300	10000	10000	20200	20400	99	100	70-130	1	20	
Lead	ug/L	<4.6	1000	1000	1000	997	100	99	70-130	0	20	
Lithium	ug/L	16.1	1000	1000	1020	1030	100	101	70-130	1	20	
Magnesium	ug/L	20800	10000	10000	30200	29900	94	91	70-130	1	20	
Manganese	ug/L	298	1000	1000	1280	1260	98	96	70-130	2	20	
Molybdenum	ug/L	20.1	1000	1000	1050	1040	103	102	70-130	0	20	
Potassium	ug/L	5790	10000	10000	15600	15800	98	100	70-130	1	20	
Sodium	ug/L	38200	10000	10000	47400	47300	92	90	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 689218
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

METHOD BLANK: 2784886
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	11/16/20 14:31	
Boron	ug/L	<11.7	100	11.7	11/16/20 14:31	
Calcium	ug/L	<32.4	200	32.4	11/16/20 14:31	
Cobalt	ug/L	<1.5	5.0	1.5	11/16/20 14:31	
Iron	ug/L	<26.8	50.0	26.8	11/16/20 14:31	
Lead	ug/L	<4.6	10.0	4.6	11/16/20 14:31	
Lithium	ug/L	<4.6	10.0	4.6	11/16/20 14:31	
Magnesium	ug/L	<19.7	50.0	19.7	11/16/20 14:31	
Manganese	ug/L	<0.97	5.0	0.97	11/16/20 14:31	
Molybdenum	ug/L	<1.7	20.0	1.7	11/16/20 14:31	
Potassium	ug/L	<189	500	189	11/16/20 14:31	
Sodium	ug/L	<107	500	107	11/16/20 14:31	

LABORATORY CONTROL SAMPLE: 2784887

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	974	97	85-115	
Boron	ug/L	1000	977	98	85-115	
Calcium	ug/L	10000	9970	100	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Iron	ug/L	10000	9970	100	85-115	
Lead	ug/L	1000	1020	102	85-115	
Lithium	ug/L	1000	988	99	85-115	
Magnesium	ug/L	10000	9930	99	85-115	
Manganese	ug/L	1000	982	98	85-115	
Molybdenum	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9980	100	85-115	
Sodium	ug/L	10000	9640	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784888 2784889

Parameter	Units	60352696004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	15.2	1000	1000	922	953	91	94	70-130	3	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784888 2784889

Parameter	Units	60352696004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2010	1000	1000	3250	3300	124	129	70-130	1	20	
Calcium	ug/L	9700	10000	10000	20100	20700	104	110	70-130	3	20	
Cobalt	ug/L	<1.5	1000	1000	932	960	93	96	70-130	3	20	
Iron	ug/L	293	10000	10000	9690	10000	94	97	70-130	4	20	
Lead	ug/L	15.5	1000	1000	931	959	92	94	70-130	3	20	
Lithium	ug/L	<4.6	1000	1000	912	944	91	94	70-130	3	20	
Magnesium	ug/L	421	10000	10000	9470	9700	90	93	70-130	2	20	
Manganese	ug/L	7.7	1000	1000	914	938	91	93	70-130	3	20	
Molybdenum	ug/L	92.8	1000	1000	1040	1080	95	98	70-130	3	20	
Potassium	ug/L	1770	10000	10000	11300	11600	96	98	70-130	3	20	
Sodium	ug/L	182000	10000	10000	215000	215000	325	324	70-130	0	20	M1

MATRIX SPIKE SAMPLE: 2784890

Parameter	Units	60352696011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	109	1000	1030	92	70-130	
Boron	ug/L	5360	1000	6450	109	70-130	
Calcium	ug/L	91900	10000	104000	126	70-130	
Cobalt	ug/L	<1.5	1000	928	93	70-130	
Iron	ug/L	2350	10000	11900	95	70-130	
Lead	ug/L	<4.6	1000	913	91	70-130	
Lithium	ug/L	140	1000	1070	93	70-130	
Magnesium	ug/L	29000	10000	38800	99	70-130	
Manganese	ug/L	628	1000	1560	93	70-130	
Molybdenum	ug/L	374	1000	1340	97	70-130	
Potassium	ug/L	7740	10000	17600	98	70-130	
Sodium	ug/L	330000	10000	354000	233	70-130	M1

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 688411
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2782190 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	11/12/20 05:46	
Arsenic	ug/L	<0.086	1.0	0.086	11/12/20 05:46	
Cadmium	ug/L	<0.056	0.50	0.056	11/12/20 05:46	
Chromium	ug/L	<0.22	1.0	0.22	11/12/20 05:46	
Selenium	ug/L	<0.18	1.0	0.18	11/12/20 05:46	

LABORATORY CONTROL SAMPLE: 2782191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	38.7	97	85-115	
Cadmium	ug/L	40	38.0	95	85-115	
Chromium	ug/L	40	38.4	96	85-115	
Selenium	ug/L	40	38.0	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782192 2782193

Parameter	Units	60352696021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.097	40	40	37.6	37.5	94	94	70-130	0	20	
Arsenic	ug/L	1.1	40	40	39.7	39.2	96	95	70-130	1	20	
Cadmium	ug/L	0.13J	40	40	36.0	35.7	90	89	70-130	1	20	
Chromium	ug/L	<0.22	40	40	35.8	35.3	89	88	70-130	1	20	
Selenium	ug/L	<0.18	40	40	35.6	35.5	89	89	70-130	0	20	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 689220
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

METHOD BLANK: 2784895
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	11/16/20 16:30	
Arsenic	ug/L	<0.086	1.0	0.086	11/16/20 16:30	
Cadmium	ug/L	<0.056	0.50	0.056	11/16/20 16:30	
Chromium	ug/L	<0.22	1.0	0.22	11/16/20 16:30	
Selenium	ug/L	<0.18	1.0	0.18	11/16/20 16:30	

LABORATORY CONTROL SAMPLE: 2784896

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.6	96	85-115	
Arsenic	ug/L	40	39.6	99	85-115	
Cadmium	ug/L	40	38.5	96	85-115	
Chromium	ug/L	40	39.2	98	85-115	
Selenium	ug/L	40	38.9	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2784897 2784898

Parameter	Units	60352696004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.46J	40	40	38.2	38.6	94	95	70-130	1	20	
Arsenic	ug/L	56.5	40	40	94.6	97.0	95	101	70-130	3	20	
Cadmium	ug/L	0.52	40	40	36.9	37.4	91	92	70-130	1	20	
Chromium	ug/L	0.78J	40	40	36.5	37.3	89	91	70-130	2	20	
Selenium	ug/L	1.6	40	40	35.4	36.0	84	86	70-130	2	20	

MATRIX SPIKE SAMPLE: 2784899

Parameter	Units	60352696012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.11J	40	36.1	90	70-130	
Arsenic	ug/L	15.3	40	52.8	94	70-130	
Cadmium	ug/L	0.080J	40	35.4	88	70-130	
Chromium	ug/L	0.23J	40	39.4	98	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

MATRIX SPIKE SAMPLE: 2784899

Parameter	Units	60352696012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Selenium	ug/L	<0.18	40	35.2	88	70-130	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 687066
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696014, 60352696015, 60352696016

METHOD BLANK: 2776658
Matrix: Water
Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696014, 60352696015, 60352696016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/04/20 10:22	

LABORATORY CONTROL SAMPLE: 2776659

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

SAMPLE DUPLICATE: 2776660

Parameter	Units	60352696004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	198	197	0	10	

SAMPLE DUPLICATE: 2776661

Parameter	Units	60352698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	418	424	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 687334
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696017

METHOD BLANK: 2777779
Matrix: Water
Associated Lab Samples: 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/05/20 10:07	

LABORATORY CONTROL SAMPLE: 2777780

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

SAMPLE DUPLICATE: 2777781

Parameter	Units	60353110006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	583	599	3	10	

SAMPLE DUPLICATE: 2777782

Parameter	Units	60352696008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	220	218	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 687335
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2777783 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	11/05/20 13:21	

LABORATORY CONTROL SAMPLE: 2777784

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

SAMPLE DUPLICATE: 2777785

Parameter	Units	60352917002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	646	658	2	10	

SAMPLE DUPLICATE: 2777786

Parameter	Units	60353027003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	408	409	0	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 686004
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696014, 60352696015, 60352696016

METHOD BLANK: 2772769
Matrix: Water
Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696014, 60352696015, 60352696016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/29/20 13:55	

LABORATORY CONTROL SAMPLE: 2772770

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

SAMPLE DUPLICATE: 2772771

Parameter	Units	60352696004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	752	796	6	10	

SAMPLE DUPLICATE: 2772772

Parameter	Units	60352698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	975	967	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 686937
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696017, 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2776278
Matrix: Water
Associated Lab Samples: 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696017, 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/03/20 14:13	

LABORATORY CONTROL SAMPLE: 2776279

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

SAMPLE DUPLICATE: 2776280

Parameter	Units	60352694006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	9900	9600	3	10	

SAMPLE DUPLICATE: 2776281

Parameter	Units	60352696013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	487	496	2	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 688350
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2782039 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/10/20 18:27	
Fluoride	mg/L	<0.075	0.20	0.075	11/10/20 18:27	
Sulfate	mg/L	<0.28	1.0	0.28	11/10/20 18:27	

METHOD BLANK: 2782310 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/10/20 23:08	
Fluoride	mg/L	<0.075	0.20	0.075	11/10/20 23:08	
Sulfate	mg/L	<0.28	1.0	0.28	11/10/20 23:08	

METHOD BLANK: 2782512 Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/11/20 09:01	
Fluoride	mg/L	<0.075	0.20	0.075	11/11/20 09:01	
Sulfate	mg/L	<0.28	1.0	0.28	11/11/20 09:01	

LABORATORY CONTROL SAMPLE: 2782040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.4	109	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	5.5	110	90-110	

LABORATORY CONTROL SAMPLE: 2782311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.2	105	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

LABORATORY CONTROL SAMPLE: 2782513

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.2	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2782041 2782042

Parameter	Units	60353027001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	64.2	50	50	128	124	128	119	80-120	4	15	M1
Fluoride	mg/L	0.40	2.5	2.5	2.7	2.7	91	91	80-120	0	15	
Sulfate	mg/L	325	100	100	450	452	124	127	80-120	1	15	E,M1

MATRIX SPIKE SAMPLE: 2782043

Parameter	Units	60353036003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	826	500	1470	129	80-120	M1
Fluoride	mg/L	ND	250	288	115	80-120	
Sulfate	mg/L	606	500	1220	123	80-120	M1

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 689325
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

METHOD BLANK: 2785160
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.56J	1.0	0.39	11/14/20 10:03	
Fluoride	mg/L	<0.075	0.20	0.075	11/14/20 10:03	
Sulfate	mg/L	<0.28	1.0	0.28	11/14/20 10:03	

METHOD BLANK: 2785999
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	11/16/20 20:12	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 20:12	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 20:12	

METHOD BLANK: 2786248
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.56J	1.0	0.39	11/16/20 09:14	
Fluoride	mg/L	<0.075	0.20	0.075	11/16/20 09:14	
Sulfate	mg/L	<0.28	1.0	0.28	11/16/20 09:14	

LABORATORY CONTROL SAMPLE: 2785161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	107	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.4	107	90-110	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

LABORATORY CONTROL SAMPLE: 2786000

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	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 2786249

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	2.6	102	90-110	
Sulfate	mg/L	5	5.4	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2785162 2785163

Parameter	Units	60352696004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	25.1	10	10	35.5	36.0	104	109	80-120	1	15	
Fluoride	mg/L	2.2	2.5	2.5	4.5	4.6	91	97	80-120	3	15	
Sulfate	mg/L	303	100	100	388	390	86	87	80-120	0	15	

MATRIX SPIKE SAMPLE: 2785164

Parameter	Units	60352696010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	32.7	50	81.0	97	80-120	
Fluoride	mg/L	1.1	2.5	3.5	94	80-120	
Sulfate	mg/L	85.0	50	134	97	80-120	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P10S **Lab ID: 60352696001** Collected: 10/26/20 15:35 Received: 10/28/20 04:10 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	**0.319 ± 0.485 (0.835) C:NA T:86%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.277 ± 0.351 (0.891) C:64% T:79%**	pCi/L	11/19/20 15:43	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P16S **Lab ID: 60352696002** Collected: 10/26/20 11:00 Received: 10/28/20 04:10 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	**0.0663 ± 0.390 (0.796)** **C:NA T:88%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.999 ± 0.526 (0.937)** **C:64% T:83%**	pCi/L	11/19/20 15:43	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17S **Lab ID: 60352696003** Collected: 10/26/20 13:10 Received: 10/28/20 04:10 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	**0.211 ± 0.497 (0.922) C:NA T:77%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.36 ± 0.594 (0.962) C:62% T:77%**	pCi/L	11/19/20 15:43	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17I **Lab ID: 60352696004** Collected: 10/26/20 11:58 Received: 10/28/20 04:10 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	**-0.0559 ± 0.255 (0.602) C:NA T:79%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.353 ± 0.583 (1.27) C:59% T:63%**	pCi/L	11/19/20 15:43	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17D **Lab ID: 60352696005** Collected: 10/26/20 14:04 Received: 10/28/20 04:10 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	**-0.0706 ± 0.366 (0.848) C:NA T:85%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.870 ± 0.616 (1.18) C:54% T:68%**	pCi/L	11/19/20 15:39	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19S **Lab ID: 60352696006** Collected: 10/27/20 14:55 Received: 10/28/20 04:10 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	**0.439 ± 0.433 (0.659)** **C:NA T:97%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.84 ± 0.872 (1.57)** **C:59% T:75%**	pCi/L	11/19/20 15:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19I **Lab ID: 60352696007** Collected: 10/27/20 14:05 Received: 10/28/20 04:10 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	**0.134 ± 0.416 (0.805)** **C:NA T:84%**	pCi/L	11/23/20 10:16	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.44 ± 1.14 (2.29)** **C:62% T:44%**	pCi/L	11/19/20 15:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P19D **Lab ID: 60352696008** Collected: 10/27/20 13:30 Received: 10/28/20 04:10 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 ± 0.351 (0.760)** **C:NA T:89%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.233 ± 0.551 (1.22)** **C:61% T:88%**	pCi/L	11/19/20 15:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21S **Lab ID: 60352696009** Collected: 10/27/20 12:10 Received: 10/28/20 04:10 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	**0.228 ± 0.388 (0.685)** **C:NA T:92%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**1.11 ± 0.722 (1.42)** **C:57% T:88%**	pCi/L	11/19/20 15:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21I **Lab ID: 60352696010** Collected: 10/27/20 11:30 Received: 10/28/20 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.301 (0.675)** **C:NA T:95%**	pCi/L	11/23/20 10:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.446 ± 1.23 (2.74)** **C:43% T:84%**	pCi/L	11/19/20 19:00	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P21D **Lab ID: 60352696011** Collected: 10/27/20 10:30 Received: 10/28/20 04:10 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	**0.417 ± 0.512 (0.835)** **C:NA T:75%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.587 ± 0.912 (1.98)** **C:58% T:78%**	pCi/L	11/19/20 19:00	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P29S **Lab ID: 60352696012** Collected: 10/27/20 11:58 Received: 10/28/20 04:10 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	**0.0714 ± 0.420 (0.858)** **C:NA T:79%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.380 ± 0.899 (1.99)** **C:59% T:80%**	pCi/L	11/19/20 19:00	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P29D **Lab ID: 60352696013** Collected: 10/27/20 11:20 Received: 10/28/20 04:10 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	**0.312 ± 0.407 (0.672)** **C:NA T:89%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.261 ± 0.939 (2.10)** **C:60% T:80%**	pCi/L	11/19/20 19:00	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-DUP-1 **Lab ID: 60352696014** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 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	**0.119 ± 0.286 (0.552)** **C:NA T:95%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.718 ± 0.653 (1.65)** **C:59% T:77%**	pCi/L	11/19/20 18:48	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-DUP-2 **Lab ID: 60352696015** Collected: 10/26/20 08:00 Received: 10/28/20 04:10 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	**0.201 ± 0.474 (0.878)** **C:NA T:78%**	pCi/L	11/23/20 10:31	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.626 ± 0.714 (1.50)** **C:65% T:79%**	pCi/L	11/19/20 18:48	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-FB-1 **Lab ID: 60352696016** Collected: 10/26/20 14:00 Received: 10/28/20 04:10 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	**-0.128 ± 0.293 (0.690)** **C:NA T:84%**	pCi/L	11/23/20 10:50	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.978 ± 0.726 (1.43)** **C:60% T:88%**	pCi/L	11/19/20 18:48	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-CA-FB-2 **Lab ID: 60352696017** Collected: 10/27/20 11:18 Received: 10/28/20 04:10 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	**0.125 ± 0.345 (0.670)** **C:NA T:84%**	pCi/L	11/23/20 10:50	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.643 ± 0.832 (1.77)** **C:53% T:75%**	pCi/L	11/19/20 18:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17I MS **Lab ID: 60352696018** Collected: 10/26/20 11:58 Received: 10/28/20 04:10 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	**96.72 %REC ± NA (NA) C:NA T:NA%**	pCi/L	11/23/20 10:50	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**145.83 %REC ± NA (NA) C:NA T:NA**	pCi/L	11/19/20 18:49	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P17I MSD **Lab ID: 60352696019** Collected: 10/26/20 11:58 Received: 10/28/20 04:10 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	**107.59 %REC 10.63 RPD ± NA (NA) C:NA T:NA%**	pCi/L	11/23/20 10:50	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**112.97 %REC 25.39 RPD ± NA(NA) C:NA T:NA**	pCi/L	11/19/20 15:39	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P05S **Lab ID: 60352696020** Collected: 10/28/20 14:02 Received: 10/30/20 04:31 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 ± 0.317 (0.711)** **C:NA T:79%**	pCi/L	11/23/20 13:57	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.470 ± 0.460 (0.949)** **C:69% T:87%**	pCi/L	11/19/20 14:21	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P22S **Lab ID: 60352696021** Collected: 10/28/20 10:15 Received: 10/30/20 04:31 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	**0.0564 ± 0.367 (0.739) C:NA T:92%**	pCi/L	11/24/20 10:58	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.698 ± 0.503 (0.979) C:64% T:82%**	pCi/L	11/19/20 14:21	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P22D **Lab ID: 60352696022** Collected: 10/28/20 09:25 Received: 10/30/20 04:31 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	**0.0887 ± 0.460 (0.954) C:NA T:65%**	pCi/L	11/24/20 10:58	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.0191 ± 0.437 (1.02) C:58% T:82%**	pCi/L	11/19/20 14:21	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Sample: R-P30S **Lab ID: 60352696023** Collected: 10/28/20 14:55 Received: 10/30/20 04:31 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	**0.131 ± 0.363 (0.704)** **C:NA T:83%**	pCi/L	11/24/20 10:58	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**2.28 ± 2.17 (4.47)** **C:58% T:24%**	pCi/L	11/19/20 14:22	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 422220
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017, 60352696018, 60352696019

METHOD BLANK: 2041011
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017, 60352696018, 60352696019

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.450 ± 0.385 (0.767) C:67% T:82%	pCi/L	11/19/20 15:43	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 422232
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2041034
Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.170 ± 0.335 (0.612) C:NA T:79%	pCi/L	11/23/20 13:57	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 422219
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017, 60352696018, 60352696019

METHOD BLANK: 2041010
Matrix: Water

Associated Lab Samples: 60352696001, 60352696002, 60352696003, 60352696004, 60352696005, 60352696006, 60352696007, 60352696008, 60352696009, 60352696010, 60352696011, 60352696012, 60352696013, 60352696014, 60352696015, 60352696016, 60352696017, 60352696018, 60352696019

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.324 (0.685) C:NA T:84%	pCi/L	11/23/20 10:16	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

QC Batch: 422233
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

METHOD BLANK: 2041035
Matrix: Water
Associated Lab Samples: 60352696020, 60352696021, 60352696022, 60352696023

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.415 ± 0.351 (0.704) C:75% T:90%	pCi/L	11/19/20 14:16	

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QUALIFIERS

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

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.

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352696001	**R-P10S**	EPA 200.7	689218	EPA 200.7	689277
60352696002	**R-P16S**	EPA 200.7	689218	EPA 200.7	689277
60352696003	**R-P17S**	EPA 200.7	689218	EPA 200.7	689277
60352696004	**R-P17I**	EPA 200.7	689218	EPA 200.7	689277
60352696005	**R-P17D**	EPA 200.7	689218	EPA 200.7	689277
60352696006	**R-P19S**	EPA 200.7	689218	EPA 200.7	689277
60352696007	**R-P19I**	EPA 200.7	689218	EPA 200.7	689277
60352696008	**R-P19D**	EPA 200.7	689218	EPA 200.7	689277
60352696009	**R-P21S**	EPA 200.7	689218	EPA 200.7	689277
60352696010	**R-P21I**	EPA 200.7	689218	EPA 200.7	689277
60352696011	**R-P21D**	EPA 200.7	689218	EPA 200.7	689277
60352696012	**R-P29S**	EPA 200.7	689218	EPA 200.7	689277
60352696013	**R-P29D**	EPA 200.7	689218	EPA 200.7	689277
60352696014	**R-CA-DUP-1**	EPA 200.7	689218	EPA 200.7	689277
60352696015	**R-CA-DUP-2**	EPA 200.7	689218	EPA 200.7	689277
60352696016	**R-CA-FB-1**	EPA 200.7	689218	EPA 200.7	689277
60352696017	**R-CA-FB-2**	EPA 200.7	689218	EPA 200.7	689277
60352696020	**R-P05S**	EPA 200.7	688410	EPA 200.7	688449
60352696021	**R-P22S**	EPA 200.7	688410	EPA 200.7	688449
60352696022	**R-P22D**	EPA 200.7	688410	EPA 200.7	688449
60352696023	**R-P30S**	EPA 200.7	688410	EPA 200.7	688449
60352696001	**R-P10S**	EPA 200.8	689220	EPA 200.8	689342
60352696002	**R-P16S**	EPA 200.8	689220	EPA 200.8	689342
60352696003	**R-P17S**	EPA 200.8	689220	EPA 200.8	689342
60352696004	**R-P17I**	EPA 200.8	689220	EPA 200.8	689342
60352696005	**R-P17D**	EPA 200.8	689220	EPA 200.8	689342
60352696006	**R-P19S**	EPA 200.8	689220	EPA 200.8	689342
60352696007	**R-P19I**	EPA 200.8	689220	EPA 200.8	689342
60352696008	**R-P19D**	EPA 200.8	689220	EPA 200.8	689342
60352696009	**R-P21S**	EPA 200.8	689220	EPA 200.8	689342
60352696010	**R-P21I**	EPA 200.8	689220	EPA 200.8	689342
60352696011	**R-P21D**	EPA 200.8	689220	EPA 200.8	689342
60352696012	**R-P29S**	EPA 200.8	689220	EPA 200.8	689342
60352696013	**R-P29D**	EPA 200.8	689220	EPA 200.8	689342
60352696014	**R-CA-DUP-1**	EPA 200.8	689220	EPA 200.8	689342
60352696015	**R-CA-DUP-2**	EPA 200.8	689220	EPA 200.8	689342
60352696016	**R-CA-FB-1**	EPA 200.8	689220	EPA 200.8	689342
60352696017	**R-CA-FB-2**	EPA 200.8	689220	EPA 200.8	689342
60352696020	**R-P05S**	EPA 200.8	688411	EPA 200.8	688450
60352696021	**R-P22S**	EPA 200.8	688411	EPA 200.8	688450
60352696022	**R-P22D**	EPA 200.8	688411	EPA 200.8	688450
60352696023	**R-P30S**	EPA 200.8	688411	EPA 200.8	688450
60352696001	**R-P10S**	EPA 903.1	422219		
60352696002	**R-P16S**	EPA 903.1	422219		
60352696003	**R-P17S**	EPA 903.1	422219		
60352696004	**R-P17I**	EPA 903.1	422219		
60352696005	**R-P17D**	EPA 903.1	422219		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352696006	**R-P19S**	EPA 903.1	422219		
60352696007	**R-P19I**	EPA 903.1	422219		
60352696008	**R-P19D**	EPA 903.1	422219		
60352696009	**R-P21S**	EPA 903.1	422219		
60352696010	**R-P21I**	EPA 903.1	422219		
60352696011	**R-P21D**	EPA 903.1	422219		
60352696012	**R-P29S**	EPA 903.1	422219		
60352696013	**R-P29D**	EPA 903.1	422219		
60352696014	**R-CA-DUP-1**	EPA 903.1	422219		
60352696015	**R-CA-DUP-2**	EPA 903.1	422219		
60352696016	**R-CA-FB-1**	EPA 903.1	422219		
60352696017	**R-CA-FB-2**	EPA 903.1	422219		
60352696018	**R-P17I MS**	EPA 903.1	422219		
60352696019	**R-P17I MSD**	EPA 903.1	422219		
60352696020	**R-P05S**	EPA 903.1	422232		
60352696021	**R-P22S**	EPA 903.1	422232		
60352696022	**R-P22D**	EPA 903.1	422232		
60352696023	**R-P30S**	EPA 903.1	422232		
60352696001	**R-P10S**	EPA 904.0	422220		
60352696002	**R-P16S**	EPA 904.0	422220		
60352696003	**R-P17S**	EPA 904.0	422220		
60352696004	**R-P17I**	EPA 904.0	422220		
60352696005	**R-P17D**	EPA 904.0	422220		
60352696006	**R-P19S**	EPA 904.0	422220		
60352696007	**R-P19I**	EPA 904.0	422220		
60352696008	**R-P19D**	EPA 904.0	422220		
60352696009	**R-P21S**	EPA 904.0	422220		
60352696010	**R-P21I**	EPA 904.0	422220		
60352696011	**R-P21D**	EPA 904.0	422220		
60352696012	**R-P29S**	EPA 904.0	422220		
60352696013	**R-P29D**	EPA 904.0	422220		
60352696014	**R-CA-DUP-1**	EPA 904.0	422220		
60352696015	**R-CA-DUP-2**	EPA 904.0	422220		
60352696016	**R-CA-FB-1**	EPA 904.0	422220		
60352696017	**R-CA-FB-2**	EPA 904.0	422220		
60352696018	**R-P17I MS**	EPA 904.0	422220		
60352696019	**R-P17I MSD**	EPA 904.0	422220		
60352696020	**R-P05S**	EPA 904.0	422233		
60352696021	**R-P22S**	EPA 904.0	422233		
60352696022	**R-P22D**	EPA 904.0	422233		
60352696023	**R-P30S**	EPA 904.0	422233		
60352696001	**R-P10S**	SM 2320B	687066		
60352696002	**R-P16S**	SM 2320B	687066		
60352696003	**R-P17S**	SM 2320B	687066		
60352696004	**R-P17I**	SM 2320B	687066		
60352696005	**R-P17D**	SM 2320B	687066		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352696006	**R-P19S**	SM 2320B	687334		
60352696007	**R-P19I**	SM 2320B	687334		
60352696008	**R-P19D**	SM 2320B	687334		
60352696009	**R-P21S**	SM 2320B	687334		
60352696010	**R-P21I**	SM 2320B	687334		
60352696011	**R-P21D**	SM 2320B	687334		
60352696012	**R-P29S**	SM 2320B	687334		
60352696013	**R-P29D**	SM 2320B	687334		
60352696014	**R-CA-DUP-1**	SM 2320B	687066		
60352696015	**R-CA-DUP-2**	SM 2320B	687066		
60352696016	**R-CA-FB-1**	SM 2320B	687066		
60352696017	**R-CA-FB-2**	SM 2320B	687334		
60352696020	**R-P05S**	SM 2320B	687335		
60352696021	**R-P22S**	SM 2320B	687335		
60352696022	**R-P22D**	SM 2320B	687335		
60352696023	**R-P30S**	SM 2320B	687335		
60352696001	**R-P10S**	SM 2540C	686004		
60352696002	**R-P16S**	SM 2540C	686004		
60352696003	**R-P17S**	SM 2540C	686004		
60352696004	**R-P17I**	SM 2540C	686004		
60352696005	**R-P17D**	SM 2540C	686004		
60352696006	**R-P19S**	SM 2540C	686937		
60352696007	**R-P19I**	SM 2540C	686937		
60352696008	**R-P19D**	SM 2540C	686937		
60352696009	**R-P21S**	SM 2540C	686937		
60352696010	**R-P21I**	SM 2540C	686937		
60352696011	**R-P21D**	SM 2540C	686937		
60352696012	**R-P29S**	SM 2540C	686937		
60352696013	**R-P29D**	SM 2540C	686937		
60352696014	**R-CA-DUP-1**	SM 2540C	686004		
60352696015	**R-CA-DUP-2**	SM 2540C	686004		
60352696016	**R-CA-FB-1**	SM 2540C	686004		
60352696017	**R-CA-FB-2**	SM 2540C	686937		
60352696020	**R-P05S**	SM 2540C	686937		
60352696021	**R-P22S**	SM 2540C	686937		
60352696022	**R-P22D**	SM 2540C	686937		
60352696023	**R-P30S**	SM 2540C	686937		
60352696001	**R-P10S**	EPA 300.0	689325		
60352696002	**R-P16S**	EPA 300.0	689325		
60352696003	**R-P17S**	EPA 300.0	689325		
60352696004	**R-P17I**	EPA 300.0	689325		
60352696005	**R-P17D**	EPA 300.0	689325		
60352696006	**R-P19S**	EPA 300.0	689325		
60352696007	**R-P19I**	EPA 300.0	689325		
60352696008	**R-P19D**	EPA 300.0	689325		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN RCPA-CA
Pace Project No.: 60352696

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60352696009	**R-P21S**	EPA 300.0	689325		
60352696010	**R-P21I**	EPA 300.0	689325		
60352696011	**R-P21D**	EPA 300.0	689325		
60352696012	**R-P29S**	EPA 300.0	689325		
60352696013	**R-P29D**	EPA 300.0	689325		
60352696014	**R-CA-DUP-1**	EPA 300.0	689325		
60352696015	**R-CA-DUP-2**	EPA 300.0	689325		
60352696016	**R-CA-FB-1**	EPA 300.0	689325		
60352696017	**R-CA-FB-2**	EPA 300.0	689325		
60352696020	**R-P05S**	EPA 300.0	688350		
60352696021	**R-P22S**	EPA 300.0	688350		
60352696022	**R-P22D**	EPA 300.0	688350		
60352696023	**R-P30S**	EPA 300.0	688350		

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Sample Condition Upon Receipt

WO#: 60352696
60352696

Client Name: GOLDER

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

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

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐ X 8

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

Thermometer Used: T296 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 1.4, 1.4 / 1.2, 0.8 Corr. Factor -0.4 Corrected 1.0, 1.0 / 0.8, 0.4

Date and initials of person examining contents: 10/28/20 HF

Temperature should be above freezing to 6°C 9.0, 9.1, 9.4, 10.0 NO ICE: 8.6, 8.7, 9.0, 9.6

Chain of Custody present:	☑Yes ☐No ☐N/A	* The coolers w/ no ice contain Rad samples.
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	received ms/msd volume for sample "R-P171". Did not receive volume for "R-CA-MSD + MSD-1", times/dates match the collection for "R-P171".
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per Eric, mercury should not be analyzed.

REVIEWED
By jchurch at 9:06 am, 10/29/20

Project Manager Review: _____ Date: _____

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA-CA Rush Island Energy Cente
Project Number:	153-140602.0002A (COC #6)

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (L003526946)
1	R-P05S	WT	G																								
2	R-P10S	WT	G			10/26/20	1535		5	1		4						X	X	X	X	X	X	X	X		
3	R-P16S	WT	G				1100		5	1		4															
4	R-P17S	WT	G				1310		5	1		4															4 HNO3 Bottles for P-17S
5	R-P17I	WT	G				1158		5	1		4															~~RCA MS/MSD-1~~
6	R-P17D	WT	G				1404		5	1		4															
7	R-P19S	WT	G			10/27/20	1455		5	1		4															
8	R-P-19I	WT	G				1405		1	1		1															
9	R-P19D	WT	G				1330		1	1		1															
10	R-P21S	WT	G			10/27/20	1210		5	1		4															
11	R-P21I	WT	G				1130		1	1		1															
12	R-P21D	WT	G				1030		1	1		1						1	1	1	1	1	1	1	1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert/Golder	10/27/20	1830	Henry Fowler/PASI	10/28/20	0410	1.0	Y	Y	Y
**EPA 200.7: Ba, Co, Pb, Li, Mo							1.0	Y	Y	Y
**EPA 200.8: Sb, As, Cd, Cr, Se							0.8	Y	Y	Y
							0.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/27/2020

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

CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 2

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA-CA Rush Island Energy Cente
Project Number:	153-140602.0002A (COC #5)

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES | GROUND WATER | DRINKING WATER
UST | RCRA | OTHER _____

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (W0352696)
	Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; OT; TS																N	N	N	N	N	N	N	N			
1	R-P22S	WT	G																								
2	R-P22D	WT	G																								
3	R-P29S	WT	G			10/27/20	1158 →		5	1		4					X	X	X	X	X	X	X	X			
4	R-P29D	WT	G			↓	1120 →		↓	↓		↓					↓	↓	↓	↓	↓	↓	↓	↓			
5	~~R-P30S~~	~~WT~~	~~G~~				~~10/27/20~~	~~1555~~	~~5~~	~~1~~		~~4~~					~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			
6	~~R-P31S~~	~~WT~~	~~G~~																								
7	R-CA-DUP-1	WT	G			10/26/20	—		5	1		4					X	X	X	X	X	X	X	X			
8	R-CA-DUP-2	WT	G			10/26/20	—		5	1		4															
9	R-CA-FB-1	WT	G			10/26/20	1400		5	1		4															
10	R-CA-FB-2	WT	G			10/27/20	1118		5	1		4															
11	R-CA-MS-1	WT	G			10/26/20	1158		5	1		4															
12	R-CA-MSD-1	WT	G			↓	↓		5	1		4															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Brendan Talbert / Golder	10/27/20	1830	Larry Fowler / PASI	10/28/20	0410	8.6	N	Y	Y
**EPA 200.7: Ba, Co, Pb, Li, Mo **EPA 200.8: Sb, As, Cd, Cr, Se							8.7	N	Y	Y
							9.0	N	Y	Y
							9.6	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brendan Talbert

SIGNATURE of SAMPLER: Brendan Talbert

DATE Signed (MM/DD/YY): 10/27/2020

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Sample Condition Upon Receipt

WO# : 60352696

60352696

Client Name: Golder

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

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

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

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

Thermometer Used: T-299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.1/1.6 **Corr. Factor** +0.2 **Corrected** 1.3/1.8

Date and initials of person examining contents: PW 10/30/20

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

REVIEWED
By jchurch at 2:43 pm, 11/2/20

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 2

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA-CA Rush Island Energy Cente
Project Number:	153-140602.0002A (COC #6)

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location
STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60352696
1	R-P05S	WT	G			10/28/20	1402		5	1		4							1	1	1	1	1		1	1	2BP3N	BP1N	2BP1N	026	
2	R-P10S	WT	G																												
3	R-P16S	WT	G																												
4	R-P17S	WT	G																												
5	R-P17I	WT	G																												
6	R-P17D	WT	G																												
7	R-P19S	WT	G																												
8	R-P-19I	WT	G																												
9	R-P19D	WT	G																												
10	R-P21S	WT	G																												
11	R-P21I	WT	G																												
12	R-P21D	WT	G																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	Golder	10/28/20	1000		10/30	0431	1.3	Y	Y	Y
**EPA 200.7: Ba, Co, Pb, Li, Mo **EPA 200.8: Sb, As, Cd, Cr, Se							1.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eric Schneider

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/28/20

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

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

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

CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 2

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Email To:	Jeffrey_Ingram@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	Ryan Feldmann / Eric Schneider
Purchase Order No.:	
Project Name:	Ameren RCPA-CA Rush Island Energy Cente
Project Number:	153-140602.0002A (COC #5)

Section C Invoice Information:

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

REGULATORY AGENCY

NPDES | GROUND WATER | DRINKING WATER
UST | RCRA | OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride/Fluoride/Sulfate	App III and Cat/An Metals	Alkalinity	TDS	Appendix IV Metals **	Mercury	Radium 226	Radium 228				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60352696	
																		Y/N	N	N	N	N	N	N	N	N						
1	R-P22S	WT	G			10/28/20	1015		7	7		7							7	7	7	7	7		7	7	2BAZN			8PIN	2BPIN	021
2	R-P22D	WT	G			↓	0925		5	1		4							/	/	/	/	/		/	/	↓			↓	↓	022
3	R-P29S	WT	G																													
4	R-P29D	WT	G																													
5	R-P30S	WT	G			10/29/20	1455		5	1		4							/	/	/	/	/		/	/	↓			↓	↓	023
6	R-P31S	WT	G																													
7	R-CA-DUP-1	WT	G																													
8	R-CA-DUP-2	WT	G																													
9	R-CA-FB-1	WT	G																													
10	R-CA-FB-2	WT	G																													
11	R-CA-MS-1	WT	G																													
12	R-CA-MSD-1	WT	G																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: Fe, Mg, Mn, K, Na, Ca, B	[signature] Golder	10/29/20	1000	[signature]	10/30	0431	1-3	Y	Y	Y
**EPA 200.7: Ba, Co, Pb, Li, Mo **EPA 200.8: Sb, As, Cd, Cr, Se							1-2	Y	Y	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Eric Schmidt					
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 10/29/20				

MEMORANDUM

DATE November 30, 2020 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER - RCPA-CA - CORRECTIVE ACTION SAMPLING OCTOBER 2020 - DATA PACKAGE 60352696

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).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA-CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 11/30/2020

Laboratory: Pace Analytical
SDG #: 60352696
Analytical Method (type and no.): EPA 200.7/200.8 (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 R-P10S, R-P16S, R-P17S, R-P17I, R-P17D, R-P19S, R-P19I, R-P19D, R-P21S, R-P21I, R-P21D, R-P29S, R-P29D, R-CA-DUP-1, R-CA-DUP-2, R-CA-FB-1, R-CA-FB-2, R-P17I MS, R-P17I MSD, R-P05S, R-P22S, R-P22D, R-P30S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			10/26/2020 - 10/28/2020
b) Sampling team indicated?	x			EMS/BTT
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See Notes
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?		x		See Notes
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			R-CA-DUP-1 @ R-P17S R-CA-DUP-2 @ R-P10S
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?	x			Max RPD 6% (<10%)

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

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

Comments/Notes:

For YSI STL0125, ORP calibration took 2 hours to stabilize and was out of range (122.4 mV).

The lab received MS/MSD volume for sample "R-P17I", did not receive volume for "R-CA-MSD" and "MSD-1", times/dates match the collection for "R-P17I".

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

MB: 2785160: Chloride (0.56J), associated with samples -001 through -017, all sample results (except R-CA-FB-2) non-detect or >10x MB result.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

(MB continued): 2786248: Chloride (0.56J), associated with samples -001 through -017, all sample results (except R-CA-FB-2) non-detect or >10x MB result.

R-CA-FB-1 @ R-P17D: Calcium (66.9J), Sodium (116J), sample results >10x blank result, no qualification necessary.
R-CA-FB-2 @ R-P29D: TDS (5.5), Chloride (0.57J), sample results >10x blank result, no qualification necessary.

R-CA-DUP-1: RPD exceeds limits (20%) for Lithium (29.3%), Chromium and Radium-228 detect in sample, non-detect in DUP.
R-CA-DUP-2: RPD exceeds limits (20%) for Chromium (59.3%), Cobalt and antimony detect in sample, non-detect in DUP.

MS/MSD qualifications:
2784888/2784889: MS/MSD % recovery high for Sodium, associated with sample -004.
2784890: MS % recovery high for Sodium, associated with sample -011.
2782041/2782042: MS % recovery high for Chloride, MS/MSD % recovery high for Sulfate, associated with sample 60353027001 (unrelated sample).
2782043: MS % recovery high from Chloride, Sulfate, associated with sample 60353036003 (unrelated sample).

R-P21I: Sample collection time on containers did not match COC; client was notified.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
R-CA-FB-2	Chloride	1.0	U	Detected in MB, detected below PQL in sample
R-P17S	Lithium	24.5	J	RPD exceeds limit
"	Chromium	0.27	J	Detected in sample, non-detect in DUP
"	Radium-228	1.36 ± 0.594	J	"
R-CA-DUP-1	Lithium	32.9	J	RPD exceeds limit
"	Chromium	0.22	UJ	Detected in sample, non-detect in DUP
"	Radium-228	-0.718 ± 0.653	UJ	"
R-P10S	Chromium	0.32	J	RPD exceeds limit
"	Cobalt	1.5	J	Detected in sample, non-detect in DUP
"	Antimony	0.11	J	"
R-CA-DUP-2	Chromium	0.59	J	RPD exceeds limit
"	Cobalt	1.5	UJ	Detected in sample, non-detect in DUP
"	Antimony	0.097	UJ	"
R-P17I	Sodium	182000	J	MS/MSD % recovery high
R-P21D	Sodium	330000	J	MS % recovery high

Signature: Ann Muehlfeldt Date: 11/30/2020

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

December 22, 2020

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

RE: Project: AMEREN RCPA-CA
Pace Project No.: 60355296

Dear Jeffrey Ingram:

Enclosed are the analytical results for sample(s) received by the laboratory on November 24, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City
- 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

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CERTIFICATIONS

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

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
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas

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

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SAMPLE SUMMARY

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60355296001	**R-P-31S**	Water	11/23/20 11:30	11/24/20 05:12

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SAMPLE ANALYTE COUNT

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60355296001	**R-P-31S**	EPA 200.7	HKC	12	PASI-K
		EPA 200.8	JGP	5	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2320B	BLA	1	PASI-K
		SM 2540C	MAP	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

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

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ANALYTICAL RESULTS

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

Sample: R-P-31S **Lab ID: 60355296001** Collected: 11/23/20 11:30 Received: 11/24/20 05:12 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	**164**	ug/L	5.0	1.8	1	12/06/20 11:13	12/08/20 17:54	7440-39-3	
Boron	**323**	ug/L	100	11.7	1	12/06/20 11:13	12/08/20 17:54	7440-42-8	
Calcium	**71100**	ug/L	200	32.4	1	12/06/20 11:13	12/08/20 17:54	7440-70-2	
Cobalt	**<1.5**	ug/L	5.0	1.5	1	12/06/20 11:13	12/08/20 17:54	7440-48-4	
Iron	**1830**	ug/L	50.0	26.8	1	12/06/20 11:13	12/08/20 17:54	7439-89-6	
Lead	**<4.6**	ug/L	10.0	4.6	1	12/06/20 11:13	12/08/20 17:54	7439-92-1	
Lithium	**<4.6**	ug/L	10.0	4.6	1	12/06/20 11:13	12/08/20 17:54	7439-93-2	
Magnesium	**13200**	ug/L	50.0	19.7	1	12/06/20 11:13	12/08/20 17:54	7439-95-4	
Manganese	**2060**	ug/L	5.0	0.97	1	12/06/20 11:13	12/08/20 17:54	7439-96-5	
Molybdenum	**6.7J**	ug/L	20.0	1.7	1	12/06/20 11:13	12/08/20 17:54	7439-98-7	
Potassium	**4020**	ug/L	500	189	1	12/06/20 11:13	12/08/20 17:54	7440-09-7	
Sodium	**14400**	ug/L	500	107	1	12/06/20 11:13	12/08/20 17:54	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
	Pace Analytical Services - Kansas City								
Antimony	**<0.097**	ug/L	1.0	0.097	1	12/06/20 10:34	12/09/20 15:29	7440-36-0	
Arsenic	**16.4**	ug/L	1.0	0.086	1	12/06/20 10:34	12/09/20 15:29	7440-38-2	
Cadmium	**<0.056**	ug/L	0.50	0.056	1	12/06/20 10:34	12/09/20 15:29	7440-43-9	
Chromium	**0.34J**	ug/L	1.0	0.22	1	12/06/20 10:34	12/09/20 15:29	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	12/06/20 10:34	12/09/20 15:29	7782-49-2	
2320B Alkalinity	Analytical Method: SM 2320B								
	Pace Analytical Services - Kansas City								
Alkalinity, Total as CaCO3	**211**	mg/L	20.0	8.4	1		12/03/20 07:58		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Kansas City								
Total Dissolved Solids	**370**	mg/L	5.0	5.0	1		11/30/20 13:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
	Pace Analytical Services - Kansas City								
Chloride	**4.7**	mg/L	1.0	0.39	1		12/15/20 15:04	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.075	1		12/15/20 15:04	16984-48-8	
Sulfate	**30.2**	mg/L	5.0	1.4	5		12/15/20 15:18	14808-79-8	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 693108
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60355296001

METHOD BLANK: 2799502 Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<1.8	5.0	1.8	12/08/20 17:10	
Boron	ug/L	<11.7	100	11.7	12/08/20 17:10	
Calcium	ug/L	<32.4	200	32.4	12/08/20 17:10	
Cobalt	ug/L	<1.5	5.0	1.5	12/08/20 17:10	
Iron	ug/L	<26.8	50.0	26.8	12/08/20 17:10	
Lead	ug/L	<4.6	10.0	4.6	12/08/20 17:10	
Lithium	ug/L	<4.6	10.0	4.6	12/08/20 17:10	
Magnesium	ug/L	<19.7	50.0	19.7	12/08/20 17:10	
Manganese	ug/L	<0.97	5.0	0.97	12/08/20 17:10	
Molybdenum	ug/L	<1.7	20.0	1.7	12/08/20 17:10	
Potassium	ug/L	<189	500	189	12/08/20 17:10	
Sodium	ug/L	147J	500	107	12/08/20 17:10	

LABORATORY CONTROL SAMPLE: 2799503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	865	86	85-115	
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	8600	86	85-115	
Cobalt	ug/L	1000	892	89	85-115	
Iron	ug/L	10000	8660	87	85-115	
Lead	ug/L	1000	892	89	85-115	
Lithium	ug/L	1000	895	89	85-115	
Magnesium	ug/L	10000	8620	86	85-115	
Manganese	ug/L	1000	858	86	85-115	
Molybdenum	ug/L	1000	858	86	85-115	
Potassium	ug/L	10000	8630	86	85-115	
Sodium	ug/L	10000	8900	89	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799504 2799505

Parameter	Units	60355347001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	12.5	1000	1000	938	931	93	92	70-130	1	20	M1
Boron	ug/L	ND	1000	1000	956	941	90	89	70-130	2	20	
Calcium	ug/L	1200	10000	10000	10200	10100	90	89	70-130	0	20	M1
Cobalt	ug/L	ND	1000	1000	922	904	92	90	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799504 2799505

Parameter	Units	60355347001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	1140	10000	10000	10400	10400	93	92	70-130	0	20	
Lead	ug/L	ND	1000	1000	902	887	90	89	70-130	2	20	
Lithium	ug/L	ND	1000	1000	942	925	93	92	70-130	2	20	
Magnesium	ug/L	153	10000	10000	8910	8820	88	87	70-130	1	20	M1
Manganese	ug/L	16.3	1000	1000	938	924	92	91	70-130	1	20	
Molybdenum	ug/L	39.2	1000	1000	959	942	92	90	70-130	2	20	
Potassium	ug/L	17200	10000	10000	25700	25900	85	87	70-130	0	20	M1
Sodium	ug/L	2120000	10000	10000	2070000	2070000	-550	-500	70-130	0	20	M1

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

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 693111
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60355296001

METHOD BLANK: 2799515 Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.097	1.0	0.097	12/09/20 15:35	
Arsenic	ug/L	<0.086	1.0	0.086	12/09/20 15:35	
Cadmium	ug/L	<0.056	0.50	0.056	12/09/20 15:35	
Chromium	ug/L	<0.22	1.0	0.22	12/09/20 15:35	
Selenium	ug/L	<0.18	1.0	0.18	12/09/20 15:35	

LABORATORY CONTROL SAMPLE: 2799516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.1	95	85-115	
Arsenic	ug/L	40	37.1	93	85-115	
Cadmium	ug/L	40	36.0	90	85-115	
Chromium	ug/L	40	36.8	92	85-115	
Selenium	ug/L	40	36.6	91	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2799517 2799518

Parameter	Units	60354702003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.30J	40	40	37.4	36.7	93	91	70-130	2	20	
Arsenic	ug/L	0.74J	40	40	37.2	36.2	91	89	70-130	3	20	
Cadmium	ug/L	0.11J	40	40	34.3	33.5	86	83	70-130	3	20	
Chromium	ug/L	0.28J	40	40	37.9	36.4	94	90	70-130	4	20	
Selenium	ug/L	6.9	40	40	40.8	40.0	85	83	70-130	2	20	

MATRIX SPIKE SAMPLE: 2799519

Parameter	Units	60354369012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.097	40	37.8	94	70-130	
Arsenic	ug/L	1.3	40	37.5	90	70-130	
Cadmium	ug/L	<0.056	40	34.7	87	70-130	
Chromium	ug/L	<0.22	40	36.8	91	70-130	
Selenium	ug/L	<0.18	40	34.9	87	70-130	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 692359
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60355296001

METHOD BLANK: 2796402 Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<8.4	20.0	8.4	12/03/20 07:47	

LABORATORY CONTROL SAMPLE: 2796403

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

SAMPLE DUPLICATE: 2796405

Parameter	Units	60355663006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	284	300	6	10	

SAMPLE DUPLICATE: 2796459

Parameter	Units	60355276001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	411	416	1	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 691835
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60355296001

METHOD BLANK: 2794562
Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/30/20 13:00	

LABORATORY CONTROL SAMPLE: 2794563

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 2794564

Parameter	Units	60355276001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	694	696	0	10	

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 694755
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60355296001

METHOD BLANK: 2805415 Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/14/20 10:19	
Fluoride	mg/L	<0.075	0.20	0.075	12/14/20 10:19	
Sulfate	mg/L	<0.28	1.0	0.28	12/14/20 10:19	

METHOD BLANK: 2806549 Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.39	1.0	0.39	12/15/20 08:50	
Fluoride	mg/L	<0.075	0.20	0.075	12/15/20 08:50	
Sulfate	mg/L	<0.28	1.0	0.28	12/15/20 08:50	

LABORATORY CONTROL SAMPLE: 2805416

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

LABORATORY CONTROL SAMPLE: 2806550

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	96	90-110	
Sulfate	mg/L	5	4.5	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2805417 2805418

Parameter	Units	60356671004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	383	250	250	780	826	159	177	80-120	6	15	M1
Fluoride	mg/L	1.9	12.5	12.5	12.4	12.8	83	87	80-120	4	15	
Sulfate	mg/L	64.7	25	25	82.5	84.4	71	79	80-120	2	15	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2805421 2805420

Parameter	Units	60356673005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1080	500	500	1620	1660	108	116	80-120	3	15	M1
Fluoride	mg/L	1.3	2.5	2.5	3.8	3.8	100	103	80-120	2	15	
Sulfate	mg/L	112	50	50	157	172	91	121	80-120	9	15	M1

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

Sample: R-P-31S **Lab ID: 60355296001** Collected: 11/23/20 11:30 Received: 11/24/20 05:12 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	**-0.0627 ± 0.443 (0.941) C:NA T:90%**	pCi/L	12/21/20 16:46	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.0928 ± 0.397 (0.903) C:73% T:96%**	pCi/L	12/18/20 14:40	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 426467
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60355296001

METHOD BLANK: 2061022
Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0681 ± 0.311 (0.633) C:NA T:75%	pCi/L	12/21/20 16:46	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

QC Batch: 426468
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60355296001

METHOD BLANK: 2061024
Matrix: Water
Associated Lab Samples: 60355296001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.153 ± 0.251 (0.628) C:71% T:90%	pCi/L	12/18/20 11:48	

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QUALIFIERS

Project: AMEREN RCPA-CA
Pace Project No.: 60355296

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.

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

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 RCPA-CA
Pace Project No.: 60355296

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60355296001	**R-P-31S**	EPA 200.7	693108	EPA 200.7	693141
60355296001	**R-P-31S**	EPA 200.8	693111	EPA 200.8	693135
60355296001	**R-P-31S**	EPA 903.1	426467		
60355296001	**R-P-31S**	EPA 904.0	426468		
60355296001	**R-P-31S**	SM 2320B	692359		
60355296001	**R-P-31S**	SM 2540C	691835		
60355296001	**R-P-31S**	EPA 300.0	694755		

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Sample Condition Upon Receipt

WO# : 60355296

60355296

Client Name: Golder

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PFX ☐ FCI ☐ 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: T206 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.6 **Corr. Factor** -0.1 **Corrected** 1.5

Date and initials of person examining contents: 11/24/20 HF

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 1003173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

REVIEWED
By jchurch at 11:36 am, 11/25/20

Project Manager Review: _____ Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Fage: 1 of 1

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Jeffrey Ingram
Copy To:	
Purchase Order No.:	Rush Istand
Project Name:	Ameren ~~Labadie~~ Energy Center RCPA-CA
Project Number:	1531400602.0002A

Section C
Invoice Information:

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

REGULATORY AGENCY

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

Site Location
STATE: MO

Section D
Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	CCLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	App. III Metals*	App IV Metals**	Chloride/Fluoride/Sulfate	TDS	Alkalinity	Radium 226/228	Cations/Anions (200.7)*	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (60355296)
	Preservatives																Y/N	N	N	N	N					
1	R-P-31S	WT	G			11/23/20	1130		5	2		3						✓	✓	✓	✓	✓	✓	✓		Unpreserved Volume
2		WT	G																							limited (500mL)
3		WT	G																							
4		WT	G																							
5		WT	G																							
6		WT	G																							
7		WT	G																							
8		WT	G																							
9		WT	G																							
10		WT	G																							
11		WT	G																							
12		WT	G																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
*EPA 200.7: B, Ca, Fe, Mg, Mn, K, Na [App. III]	Eric Schmidt	11/23/20	1600	Angie M	11/23	15:53			
**EPA 200.7: Ba, Co, Pb, Li, Mo [App. IV] **EPA 200.8: As, Sb, Se, Cd, Cr [App. IV]	Angie M	11/23	15:53	Henry Fraser/PDSI	11/24/20	0512	1.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Eric Schmidt		
SIGNATURE of SAMPLER:		DATE Signed (MM/DD/YY):	11/23/20

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

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

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

MEMORANDUM

DATE December 28, 2020 **Project No.** 153140602

TO Project File
Golder Associates

CC Amanda Derhake, Jeff Ingram

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

DATA VALIDATION SUMMARY, RUSH ISLAND ENERGY CENTER – RCPA-CA – CORRECTIVE ACTION SAMPLING - DATA PACKAGE 60355296

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

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

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QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J. Ingram
Project Name: Ameren- Rush Island - RCPA-CA
Project Number: 153140602
Reviewer: A. Muehlfarth
Validation Date: 12/28/2020

Laboratory: Pace Analytical
SDG #: 60355296
Analytical Method (type and no.): EPA 200.7/200.8 (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 R-P-31S

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

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			11/23/2020
b) Sampling team indicated?	x			EMS
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?		x		
g) Field parameters collected (note types)?	x			pH, Sp.Cond, ORP, Temp, DO, Turb
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

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

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

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

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

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

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?		x		
b) Were field dup. precision criteria met (note RPD)?			x	
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?	x			Max RPD 6% (<10%)

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

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

Comments/Notes:

Sulfate was diluted in the sample, no qualification necessary.

Method Blanks:

2799502: Sodium (147 J), associated with sample -001. Sample result >10x the blank result, no qualification necessary.

MS/MSD:

2799504/2799505: MS/MSD % recovyer low for Sodium. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

(MS/MSD continued)

2805417/2805418: MS/MSD % recovery high for Chloride, MS/MSD % recovery low for Sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

2805421/2805420: MSD % recovery high for Sulfate. MS/MSD performed on unrelated sample, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: Ann Muehlfeldt Date: 12/28/2020

APPENDIX B

November 2019 Assessment Monitoring Statistical Evaluation

TECHNICAL MEMORANDUM

DATE March 4, 2020 **Project No.** 153-140601

TO Bill Kutosky
Ameren Missouri

CC Susan Knowles, Craig Giesmann, Paul Pike, Charlie Henderson

FROM Jeffrey Ingram, Sean Paulsen and Mark Haddock **EMAIL JIngram@Golder.com**

ASSESSMENT MONITORING STATISTICAL EVALUATION FOR THE RCPA SURFACE IMPOUNDMENT, RUSH ISLAND ENERGY CENTER, JEFFERSON COUNTY, MISSOURI

This Technical Memorandum provides the results of the Assessment Monitoring Statistical Evaluation from the November 2019 sampling event for the RCPA Surface Impoundment at the Rush Island Energy Center located in Jefferson County, Missouri. Included in this memorandum is a brief summary of constituents that are present at a Statistically Significant Level (SSL), a list of site-specific Groundwater Protection Standards (**Table 1**), and the Sanitas Technologies™ (Sanitas) statistical software output for each of the tested Appendix IV parameters (**Appendix A** and **Appendix B**).

During the August 2019 sampling event, monitoring well P19I was added to the Detection and Assessment monitoring well networks to satisfy the requirements of §257.95(g)(1) of the CCR Rule, which require at least one (1) additional monitoring well be installed at the downgradient facility boundary. The November 2019 sampling event is the first event during which Appendix IV data from monitoring well P19I were statistically evaluated to determine the presence of SSLs. As outlined in the Statistical Analysis Plan (SAP) for this site, which is a portion of the Groundwater Monitoring Plan (GMP), a minimum of four (4) samples are required to complete an SSL evaluation.

The Appendix IV constituents were evaluated for SSLs using the methods and procedures outlined in the SAP. The following outliers were removed prior to the calculation of confidence limits:

- Antimony
  - MW-5 at Non-detect on 5/24/2018: Method Detection Limit (MDL) was higher than other samples at MW-5 causing the result to be statistically higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.
  - MW-6 at Non-detect on 5/24/2018: MDL was higher than other samples at MW-6 causing the result to be statistically higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.
- Arsenic

- MW-6 at 115 micrograms per liter (µg/L) on 7/31/2019: Result is statiscally higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.

- Barium
  - MW-6 at 589 µg/L on 7/31/2019: Result is statiscally higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.
- Lead
  - MW-4 at 3.1 J µg/L on 3/11/2016: Result is statiscally higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.
  - MW-5 at 3.0 J µg/L on 1/19/2017 and 3.0 J on 3/6/2017: Results were stastisically higher than other values at the same well. The high results have not been confirmed during subsequent sampling events.
  - MW-6 at 3.2 J µg/L on 3/11/2016: Result is statistically higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.
- Radium (226+228)
  - MW-7 at 1.426 picocurries per liter (pci/L): Result is statistically higher than other values at the same well. The high result has not been confirmed during subsequent sampling events.

Two (2) new SSLs were identified in the November 2019 sampling event for Arsenic and Molybdenum at P19I. A summary of SSLs for the November 2019 sampling event is as follows:

- Arsenic at MW-2, MW-3 and P19I
- Molybdenum at MW-2, MW-3, MW-7/MW-7(R) and P19I

Golder appreciates this opportunity to provide hydrogeological and engineering support services to Ameren. If you have any questions or comments regarding the information provided, please call our office at (314) 984-8800.

Sincerely,

Jeffrey Ingram, R.G.
Project Geologist

Sean Paulsen, P.G.
Associate, Senior Consultant

JSI/SCP/MNH

Enclosures:
Table 1 – RCPA Groundwater Protection Standards
Appendix A – Sanitas Confidence Interval Statistical Output
Appendix B – Sanitas Trending Confidence Bands Statistical Output

Table 1 - RCPA Groundwater Protection Standards
RCPA Surface Impoundment
Rush Island Energy Center

Parameter	Units	MCL or Health Based GWPS	Site GWPS	Value to Return to Detection Monitoring[6]
Antimony	µg/L	6	6	DQR
Arsenic	µg/L	10	30	30
Barium	µg/L	2000	2000	564.3
Beryllium	µg/L	4	4	DQR
Cadmium	µg/L	5	5	DQR
Chromium	µg/L	100	100	5.422
Cobalt	µg/L	6	6	DQR
Fluoride	mg/L	4	4	0.2414
Lead	µg/L	15	15	DQR
Lithium	µg/L	40	64.7	64.7
Mercury	µg/L	2	2	DQR
Molybdenum	µg/L	100	100	DQR
Radium 226 + 228	pCi/L	5	5	2.865
Selenium	µg/L	50	50	DQR
Thallium	µg/L	2	2	DQR

Prepared by: JSI
Checked by: EMS
Reviewed by: SCP

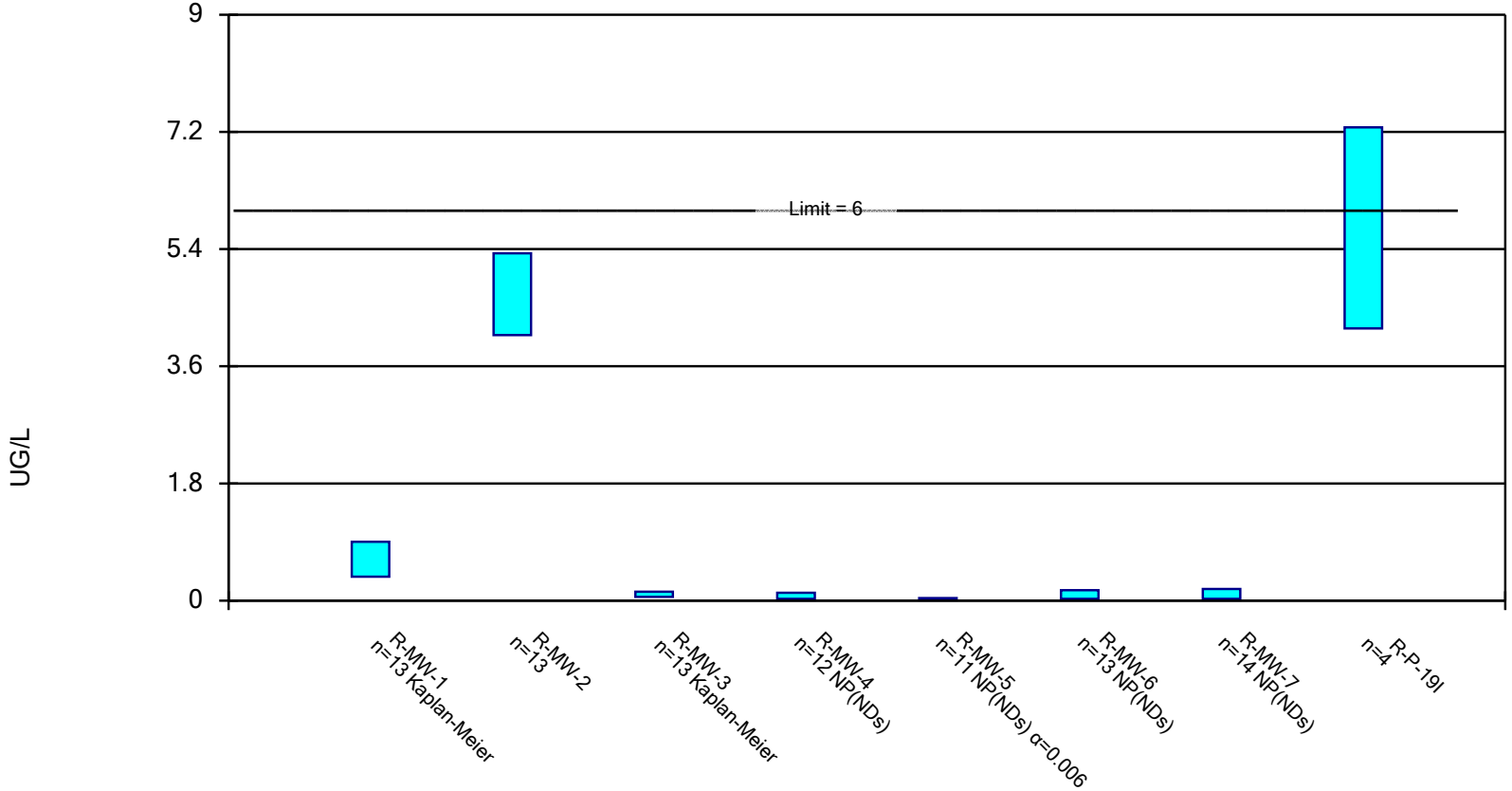
Notes:
1. µg/L - micrograms per liter
2. mg/L - milligrams per liter
3. pCi/L - picocuries per liter
4. MCL - Maximum Contaminant Level. MCLs from United States Environmental Protection Agency (USEPA) 2012 Edition of the Drinking Water Standards and Health Advisories. Spring 2012. http://water.epa.gov/drink/contaminants/index.cfm.
5. Health Based Groundwater Protection Standards (GWPS) were adoped for Appendix IV parameters without an MCL (i.e. cobalt, lithium, molybdenum, and lead). Information available at https://www.epa.gov/coalash/coal-ash-rule.
6. Values were calculated using statistical methods outlined for Detection Monitoring and are used for returning to Detection Monitoring based on available data to date.
7. DQR - Double Quantification Rule. If all baseline data are less than the Practical Quantitation Limit (PQL), then the DQR will be used. More information on the DQR is provided in the Statistical Analysis
8. Site GWPS is either the MCL/Health Based GWPS or based on background levels (calculated as described in the Statistical Analysis Plan for Assessment Monitoring), whichever is higher.
9. GWPS and background values calculated using results up through August 2019 from monitoring wells MW-B1 and MW-B2.

APPENDIX A

Sanitas Confidence Interval Statistical Output

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

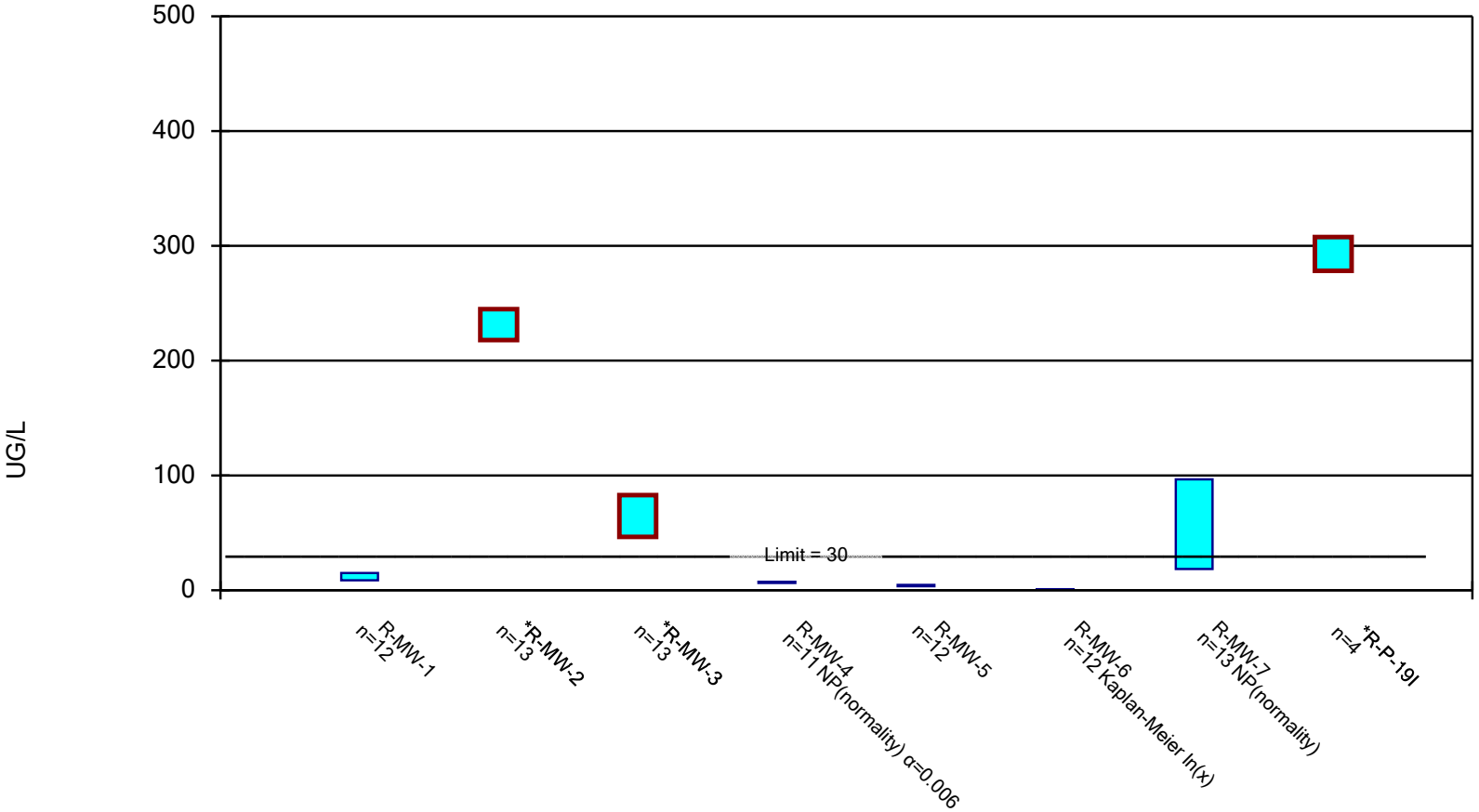


Constituent: ANTIMONY, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

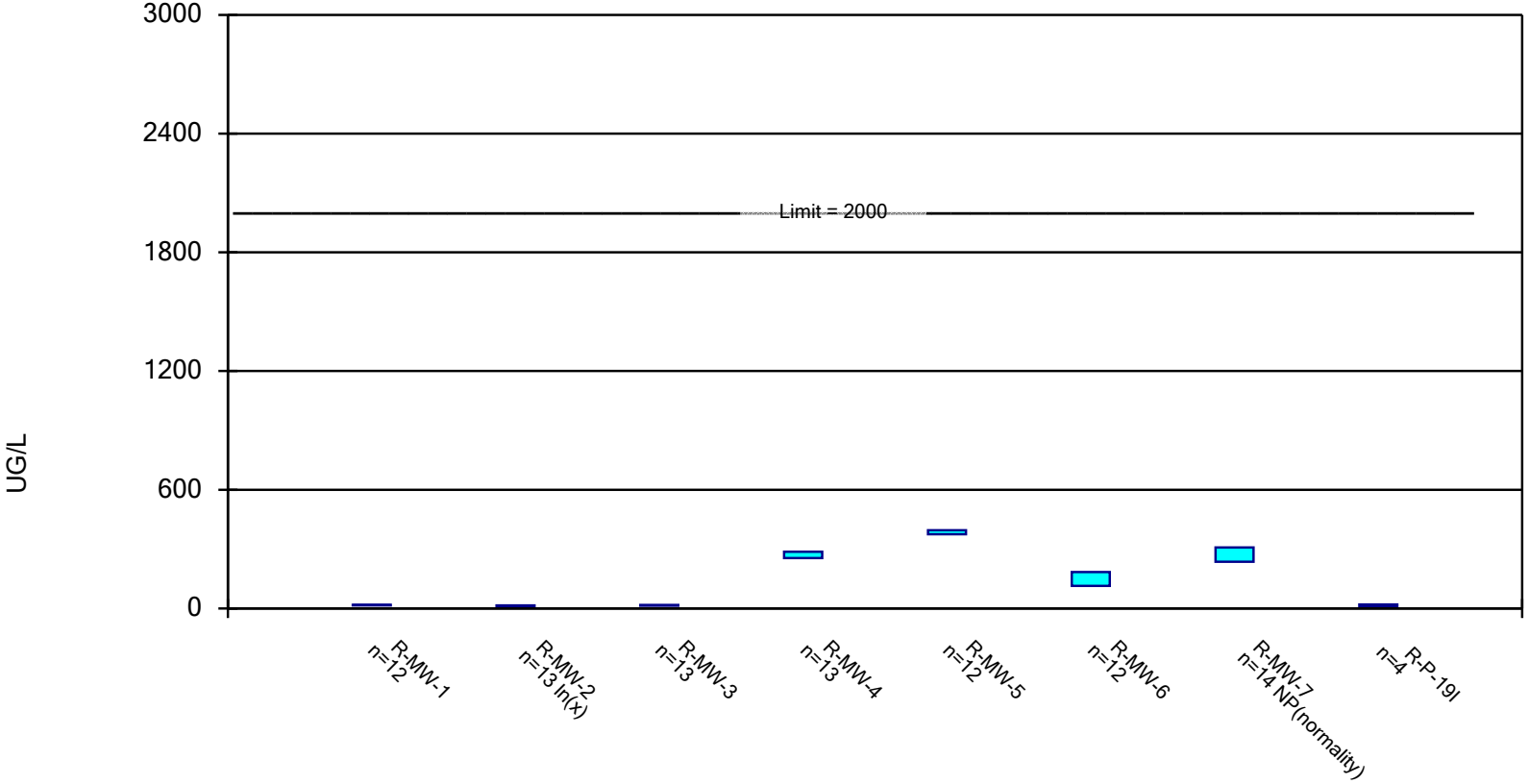


Constituent: ARSENIC, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

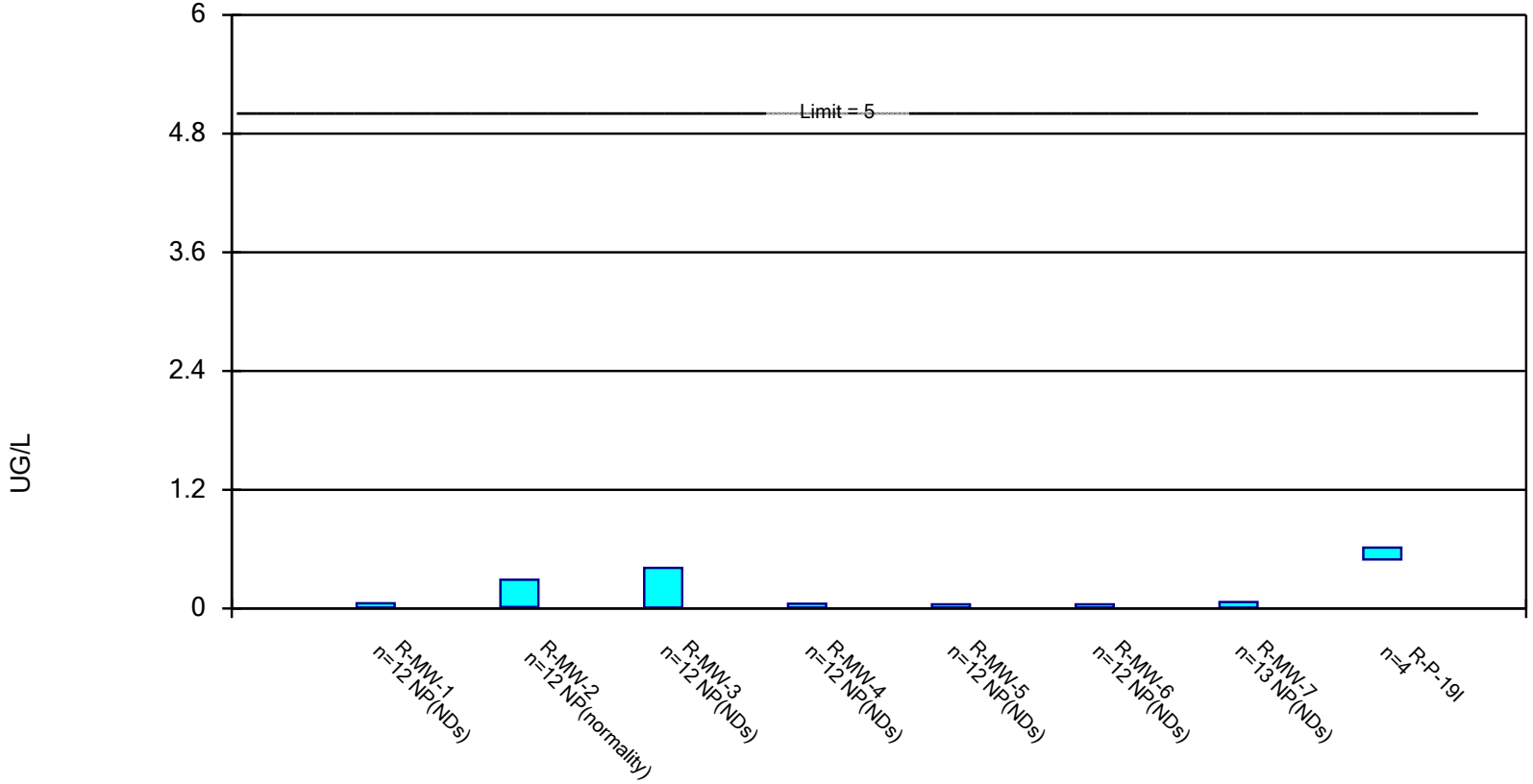


Constituent: BARIUM, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

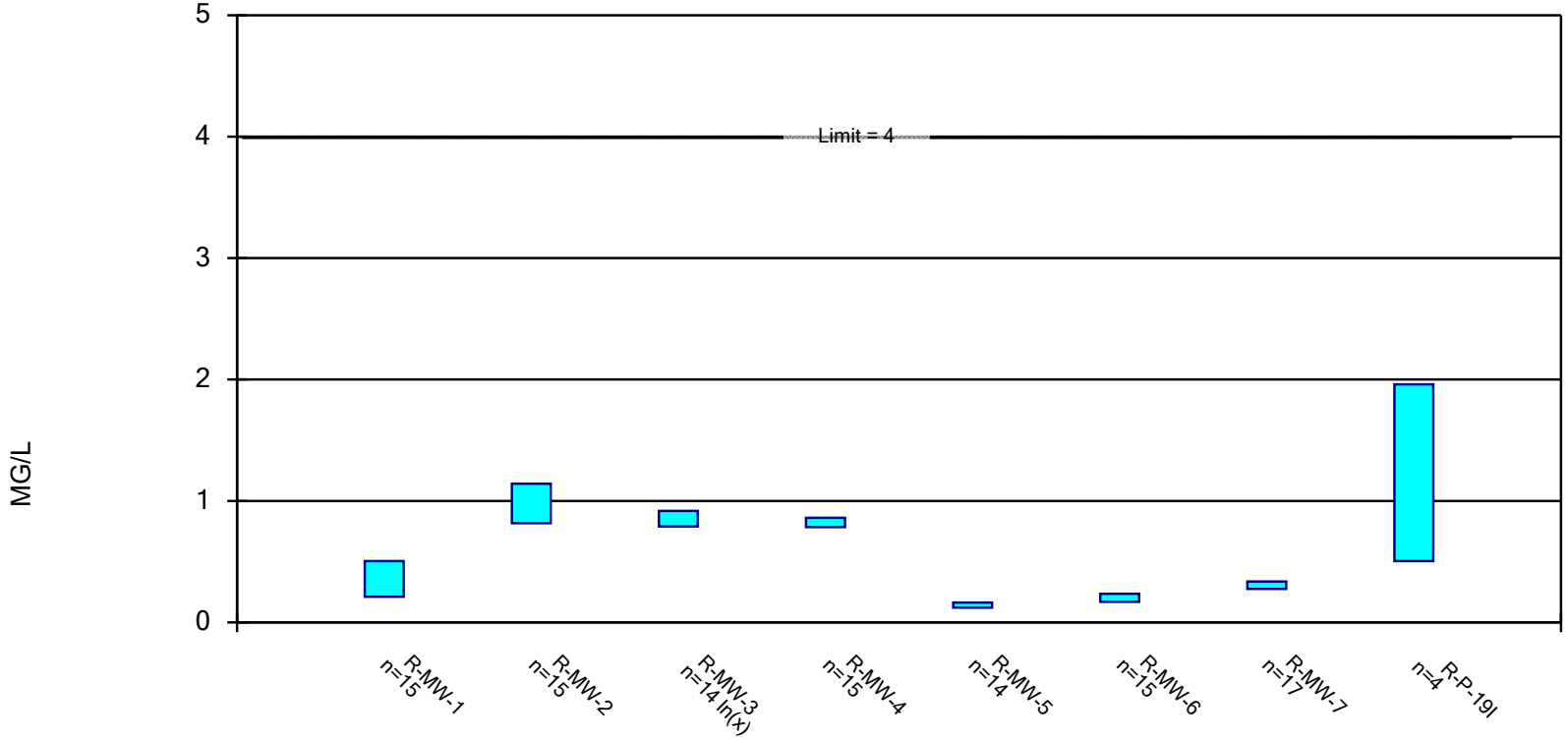


Constituent: CADMIUM, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

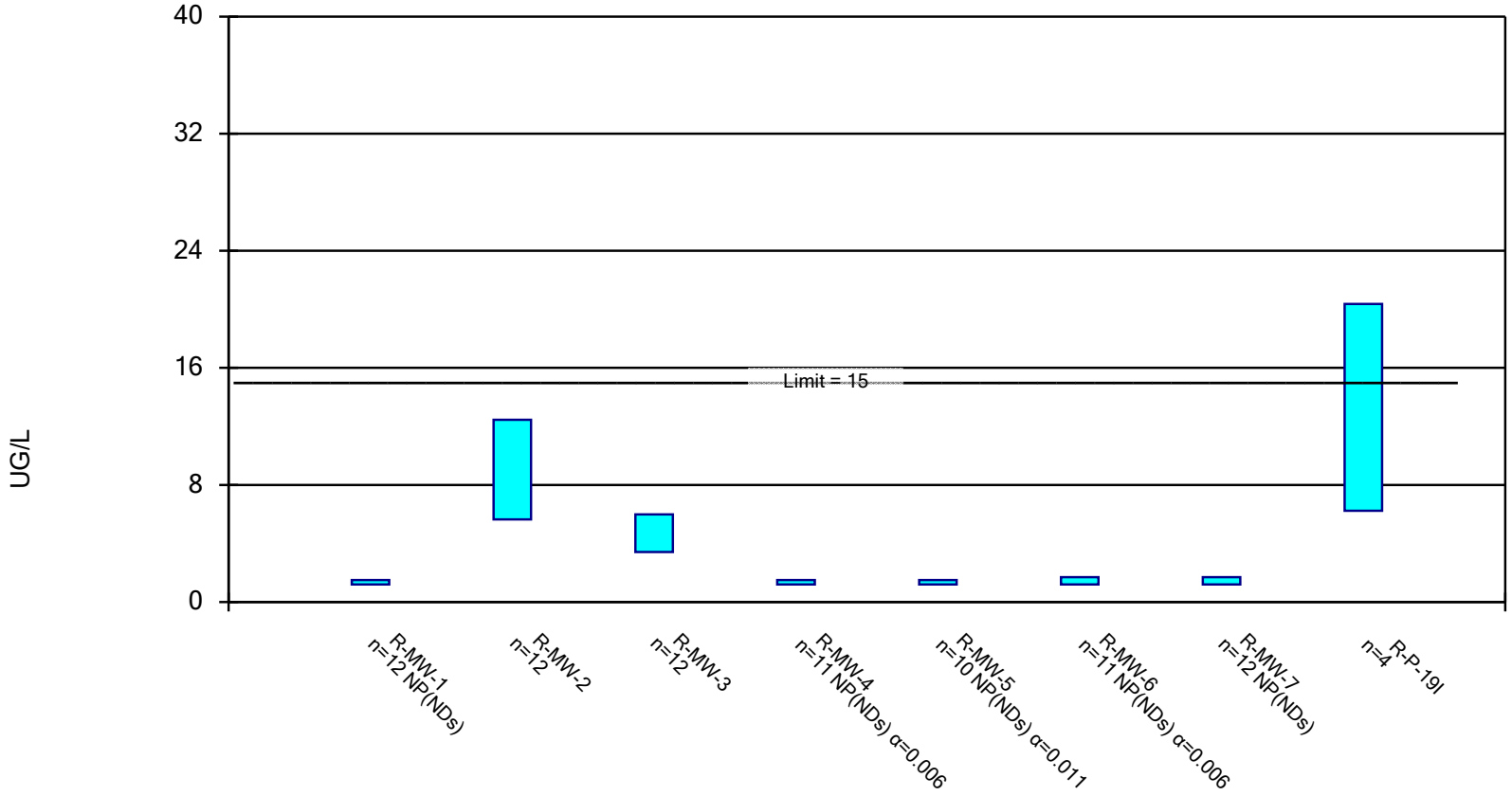


Constituent: FLUORIDE, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

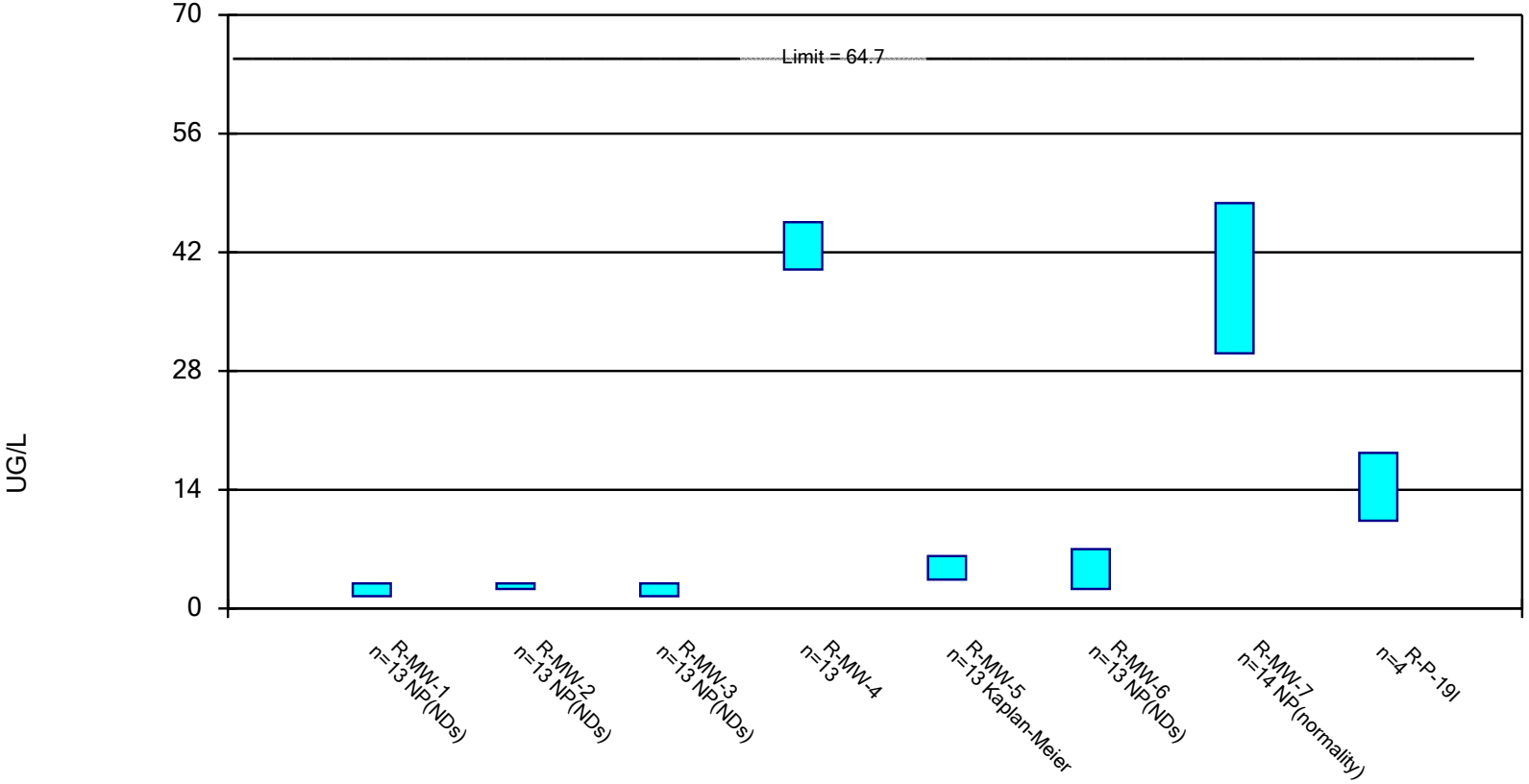


Constituent: LEAD, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

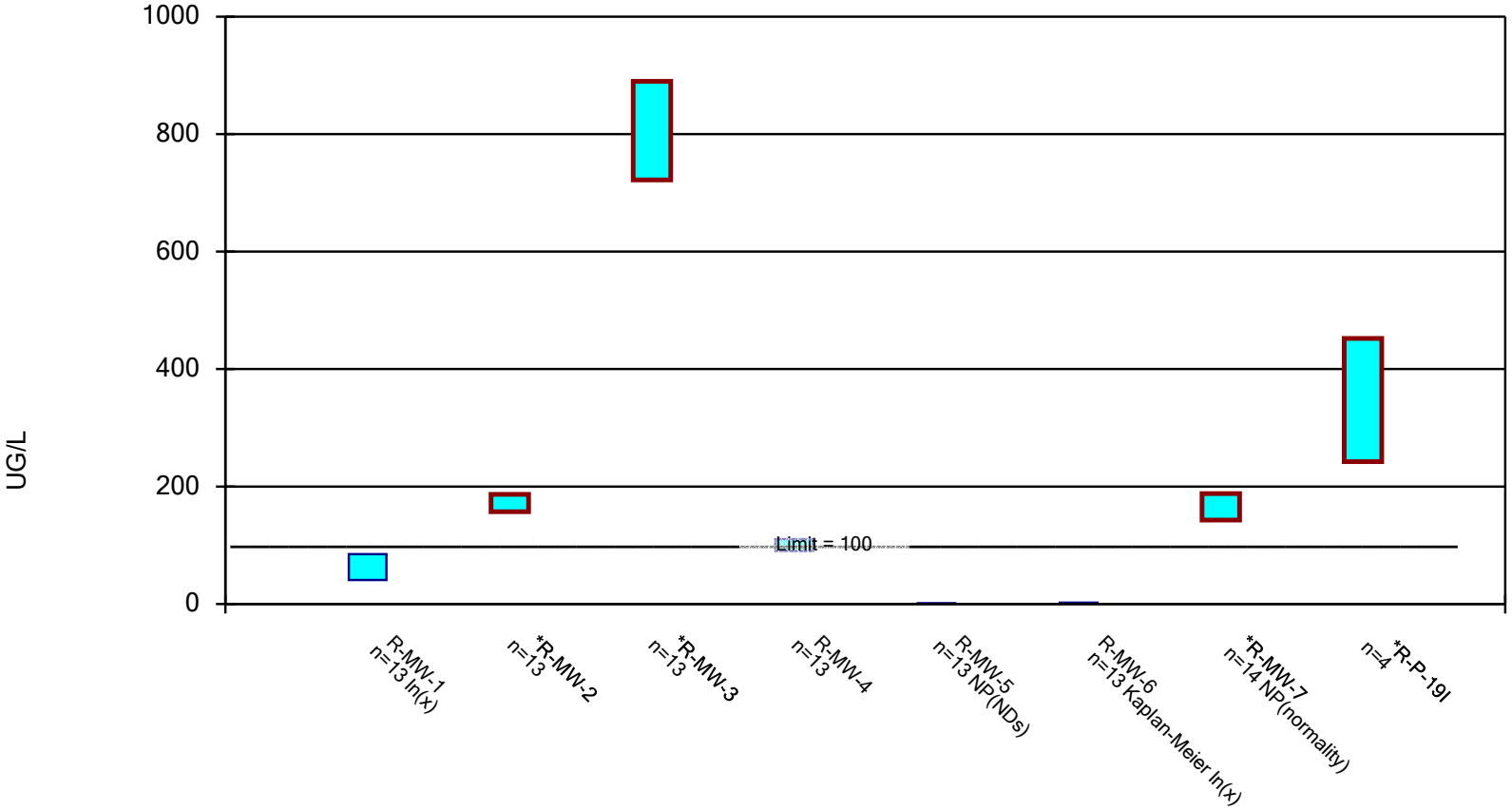


Constituent: LITHIUM, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

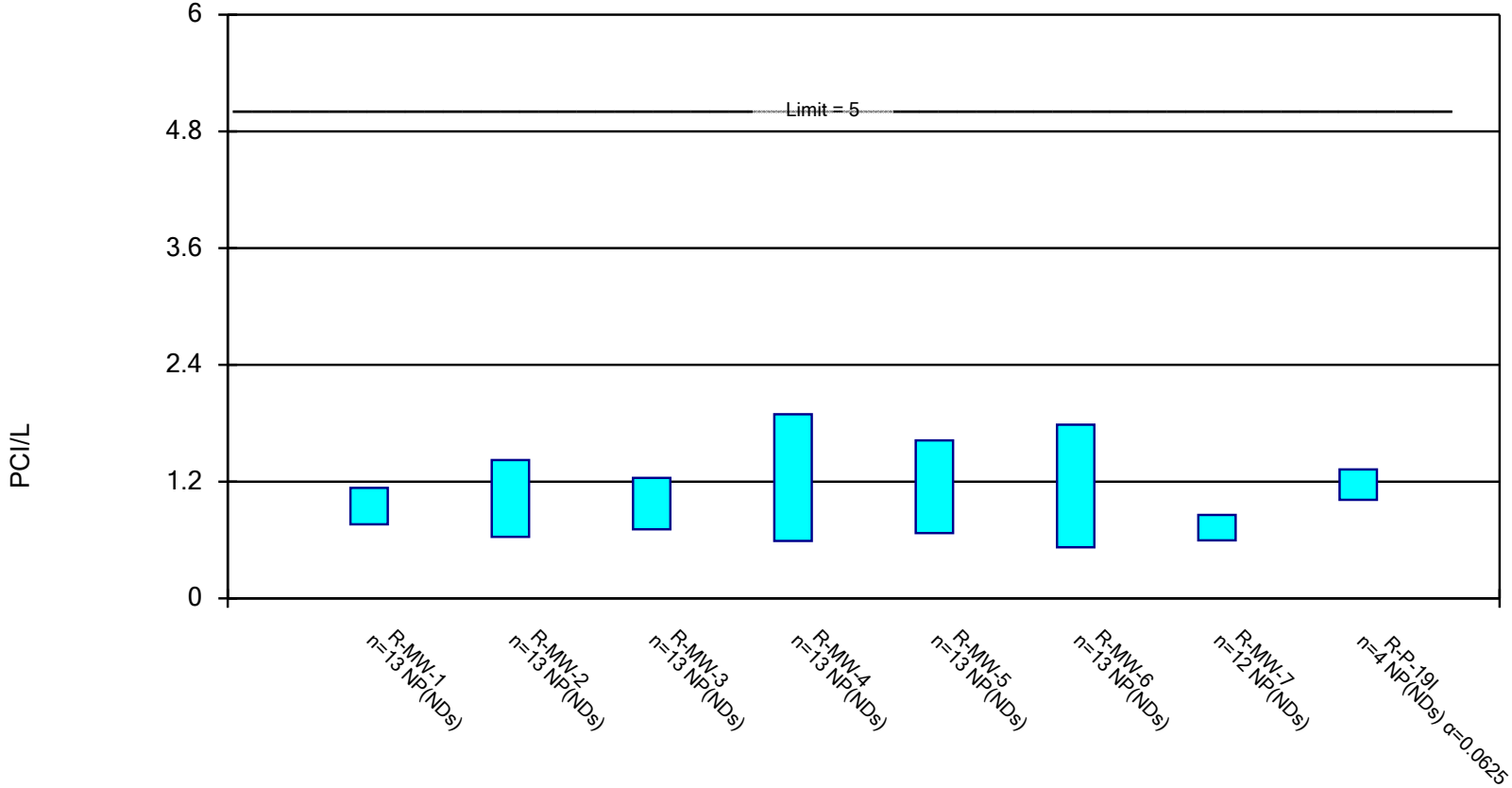


Constituent: MOLYBDENUM, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

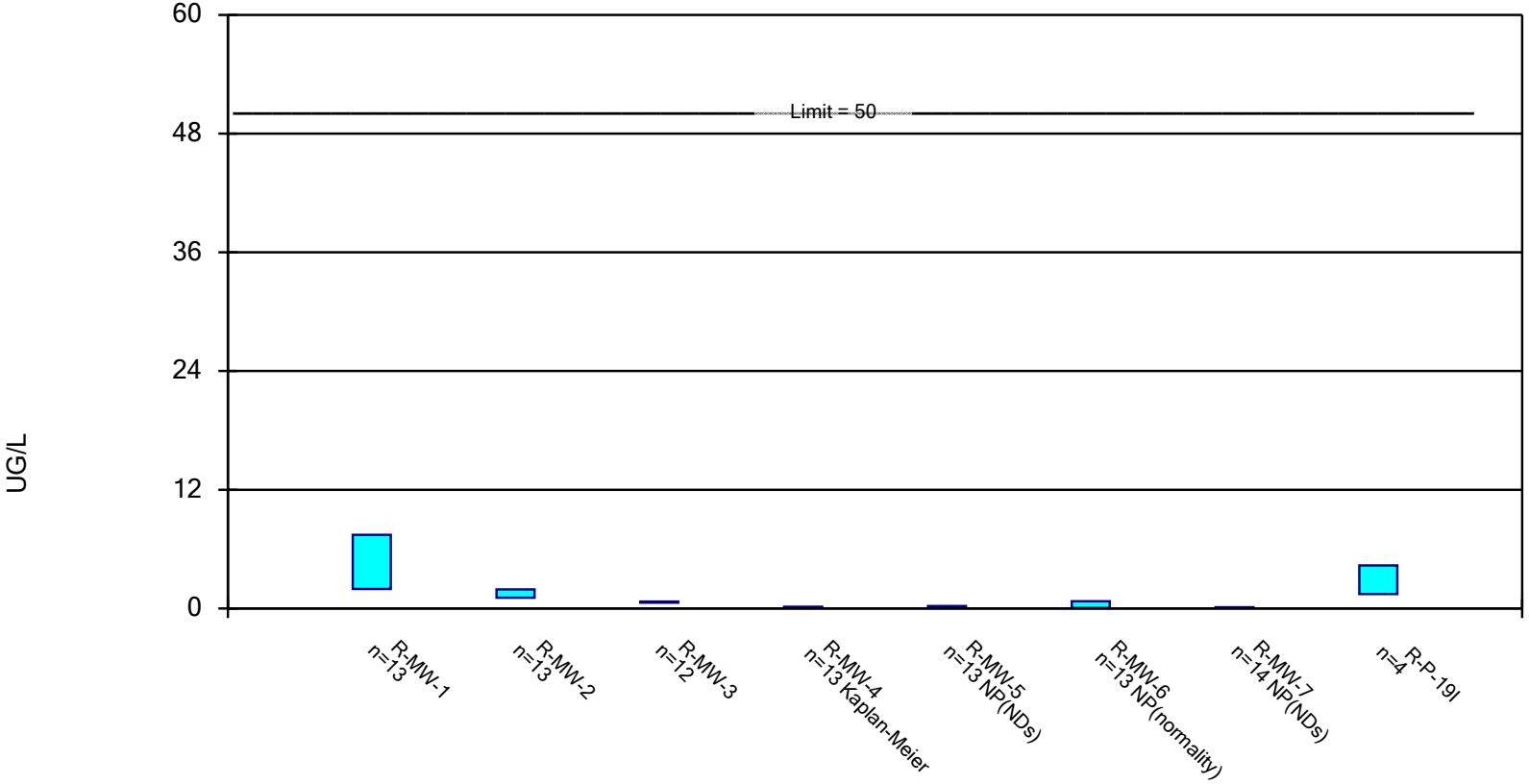


Constituent: RADIUM [226 + 228] Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: SELENIUM, TOTAL Analysis Run 3/4/2020 9:54 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Confidence Interval

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 3/4/2020, 9:55 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
ANTIMONY, TOTAL (UG/L)	R-MW-1	0.9031	0.3685	6	No	13	23.08	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-2	5.336	4.079	6	No	13	0	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-3	0.138	0.05689	6	No	13	30.77	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-4	0.12	0.0275	6	No	12	75	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-5	0.039	0.013	6	No	11	100	No	0.006	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-6	0.16	0.0275	6	No	13	53.85	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-7	0.18	0.0275	6	No	14	71.43	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-P-19I	7.269	4.181	6	No	4	0	No	0.01	Param.
ARSENIC, TOTAL (UG/L)	R-MW-1	14.94	8.66	30	No	12	0	No	0.01	Param.
ARSENIC, TOTAL (UG/L)	**R-MW-2**	**244.8**	**217.9**	**30**	**Yes**	**13**	**0**	**No**	**0.01**	**Param.**
ARSENIC, TOTAL (UG/L)	**R-MW-3**	**82.86**	**46.4**	**30**	**Yes**	**13**	**0**	**No**	**0.01**	**Param.**
ARSENIC, TOTAL (UG/L)	R-MW-4	7.4	6.3	30	No	11	0	No	0.006	NP (normality)
ARSENIC, TOTAL (UG/L)	R-MW-5	4.648	3.452	30	No	12	0	No	0.01	Param.
ARSENIC, TOTAL (UG/L)	R-MW-6	0.8482	0.1386	30	No	12	25	ln(x)	0.01	Param.
ARSENIC, TOTAL (UG/L)	R-MW-7	96.6	18.5	30	No	13	0	No	0.01	NP (normality)
ARSENIC, TOTAL (UG/L)	**R-P-19I**	**307.7**	**278.3**	**30**	**Yes**	**4**	**0**	**No**	**0.01**	**Param.**
BARIUM, TOTAL (UG/L)	R-MW-1	18.63	15.04	2000	No	12	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-2	15.66	9.645	2000	No	13	0	ln(x)	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-3	17.54	13.54	2000	No	13	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-4	286.1	254.6	2000	No	13	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-5	395.4	375.1	2000	No	12	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-6	183.8	113.7	2000	No	12	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-7	308	236	2000	No	14	0	No	0.01	NP (normality)
BARIUM, TOTAL (UG/L)	R-P-19I	19.74	12.21	2000	No	4	0	No	0.01	Param.
CADMIUM, TOTAL (UG/L)	R-MW-1	0.052	0.009	5	No	12	75	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-2	0.29	0.0145	5	No	12	25	No	0.01	NP (normality)
CADMIUM, TOTAL (UG/L)	R-MW-3	0.41	0.009	5	No	12	66.67	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-4	0.048	0.009	5	No	12	75	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-5	0.041	0.009	5	No	12	100	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-6	0.041	0.009	5	No	12	100	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-7	0.065	0.009	5	No	13	69.23	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-P-19I	0.6151	0.4949	5	No	4	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-1	0.5052	0.2108	4	No	15	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-2	1.141	0.8173	4	No	15	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-3	0.9176	0.7894	4	No	14	0	ln(x)	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-4	0.861	0.7843	4	No	15	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-5	0.1627	0.1209	4	No	14	7.143	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-6	0.2356	0.1691	4	No	15	6.667	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-7	0.3368	0.2761	4	No	17	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-P-19I	1.961	0.5042	4	No	4	0	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-1	1.5	1.2	15	No	12	100	No	0.01	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-2	12.45	5.645	15	No	12	8.333	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-3	5.99	3.419	15	No	12	8.333	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-4	1.5	1.2	15	No	11	100	No	0.006	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-5	1.5	1.2	15	No	10	100	No	0.011	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-6	1.7	1.2	15	No	11	90.91	No	0.006	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-7	1.7	1.2	15	No	12	100	No	0.01	NP (NDs)
LEAD, TOTAL (UG/L)	R-P-19I	20.37	6.234	15	No	4	0	No	0.01	Param.
LITHIUM, TOTAL (UG/L)	R-MW-1	2.95	1.45	64.7	No	13	100	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-2	2.95	2.3	64.7	No	13	92.31	No	0.01	NP (NDs)

Confidence Interval

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 3/4/2020, 9:55 AM

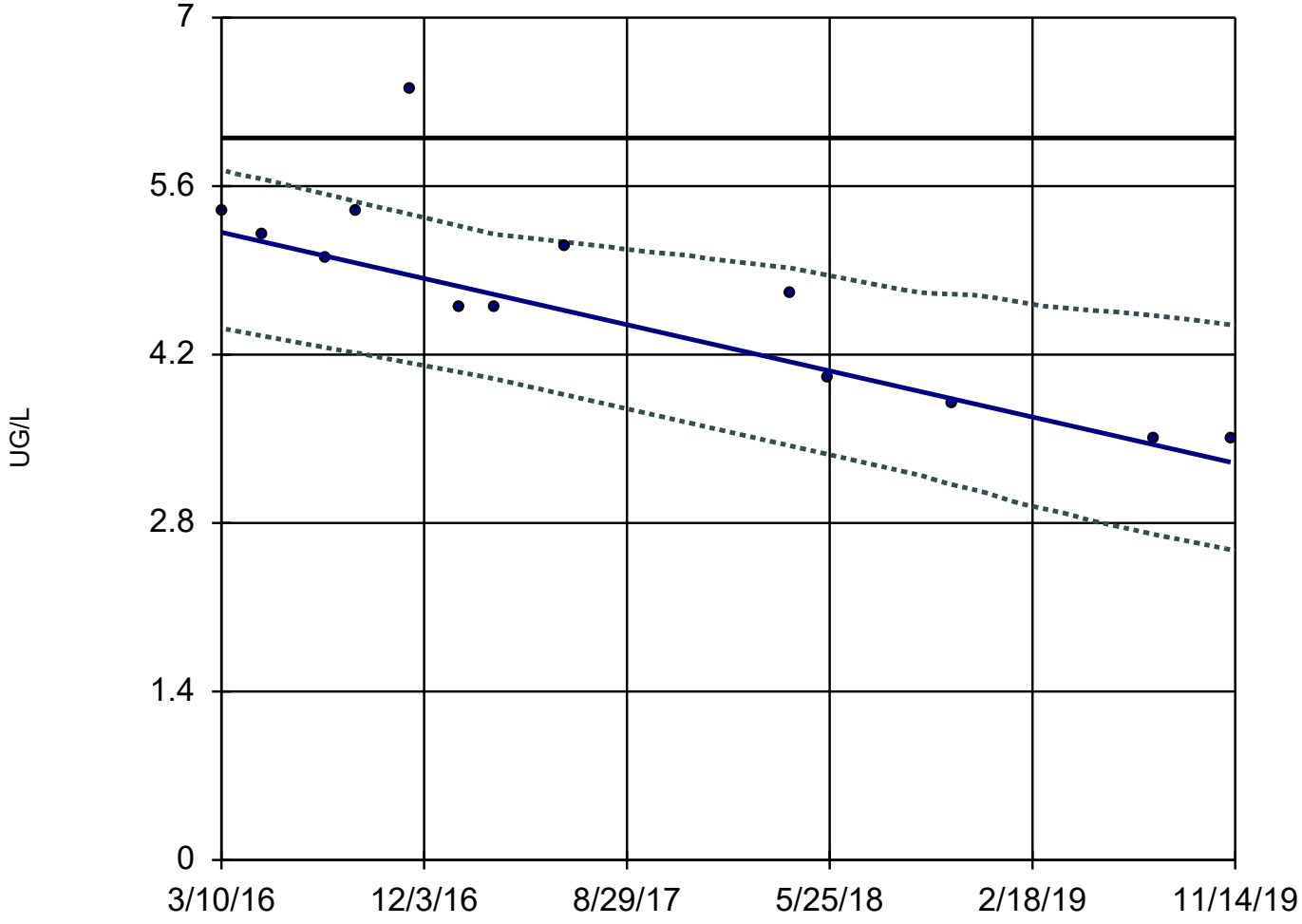
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
LITHIUM, TOTAL (UG/L)	R-MW-3	2.95	1.45	64.7	No	13	100	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-4	45.55	39.97	64.7	No	13	0	No	0.01	Param.
LITHIUM, TOTAL (UG/L)	R-MW-5	6.171	3.412	64.7	No	13	46.15	No	0.01	Param.
LITHIUM, TOTAL (UG/L)	R-MW-6	7	2.3	64.7	No	13	69.23	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-7	47.8	30.1	64.7	No	14	0	No	0.01	NP (normality)
LITHIUM, TOTAL (UG/L)	R-P-19I	18.35	10.35	64.7	No	4	0	No	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	R-MW-1	84.96	40.75	100	No	13	0	ln(x)	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	**R-MW-2**	**186.6**	**157**	**100**	**Yes**	**13**	**0**	**No**	**0.01**	**Param.**
MOLYBDENUM, TOTAL (UG/L)	**R-MW-3**	**889.8**	**722.1**	**100**	**Yes**	**13**	**0**	**No**	**0.01**	**Param.**
MOLYBDENUM, TOTAL (UG/L)	R-MW-4	110.5	90.22	100	No	13	0	No	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	R-MW-5	1.3	0.26	100	No	13	69.23	No	0.01	NP (NDs)
MOLYBDENUM, TOTAL (UG/L)	R-MW-6	2.189	0.6835	100	No	13	38.46	ln(x)	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	**R-MW-7**	**188**	**143**	**100**	**Yes**	**14**	**0**	**No**	**0.01**	**NP (normality)**
MOLYBDENUM, TOTAL (UG/L)	**R-P-19I**	**452**	**242.5**	**100**	**Yes**	**4**	**0**	**No**	**0.01**	**Param.**
RADIUM [226 + 228] (PCI/L)	R-MW-1	1.135	0.7615	5	No	13	100	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-2	1.421	0.632	5	No	13	92.31	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-3	1.238	0.7095	5	No	13	92.31	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-4	1.892	0.59	5	No	13	76.92	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-5	1.623	0.671	5	No	13	76.92	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-6	1.785	0.525	5	No	13	76.92	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-7	0.8575	0.5965	5	No	12	100	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-P-19I	1.325	1.013	5	No	4	100	No	0.0625	NP (NDs)
SELENIUM, TOTAL (UG/L)	R-MW-1	7.433	1.967	50	No	13	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-2	1.925	1.078	50	No	13	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-3	0.6961	0.5872	50	No	12	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-4	0.1625	0.1012	50	No	13	46.15	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-5	0.25	0.0425	50	No	13	100	No	0.01	NP (NDs)
SELENIUM, TOTAL (UG/L)	R-MW-6	0.72	0.043	50	No	13	23.08	No	0.01	NP (normality)
SELENIUM, TOTAL (UG/L)	R-MW-7	0.12	0.043	50	No	14	71.43	No	0.01	NP (NDs)
SELENIUM, TOTAL (UG/L)	R-P-19I	4.348	1.452	50	No	4	0	No	0.01	Param.

APPENDIX B

Sanitas Trending Confidence Bands Statistical Output

Sen's Slope and 95% Confidence Band

R-MW-2



n = 13

Slope = -0.5212 units per year.

Mann-Kendall statistic = -53
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

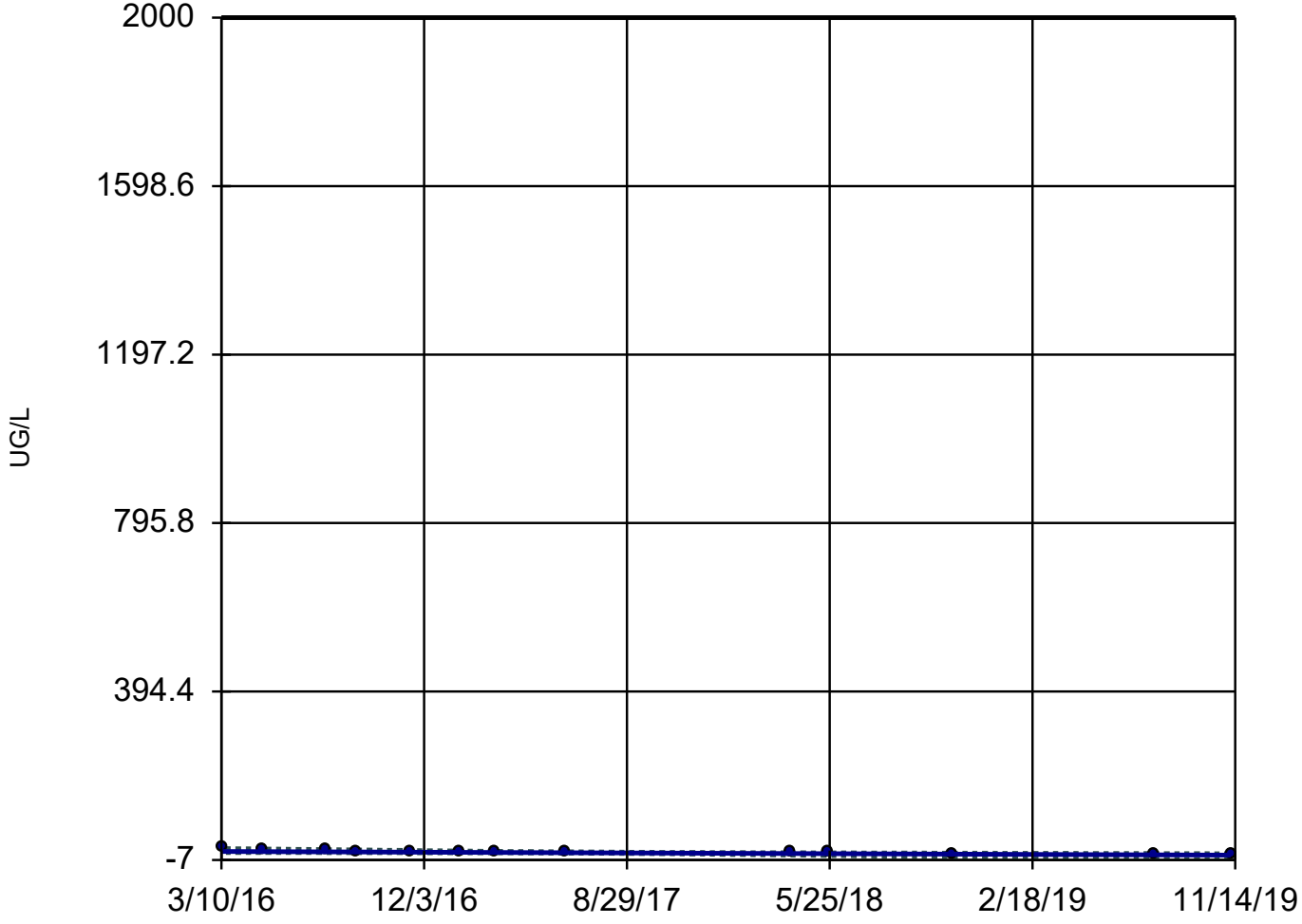
GWPS = 6.

Constituent: ANTIMONY, TOTAL Analysis Run 3/4/2020 10:02 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-2



n = 13

Slope = -2.392 units per year.

Mann-Kendall statistic = -72
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

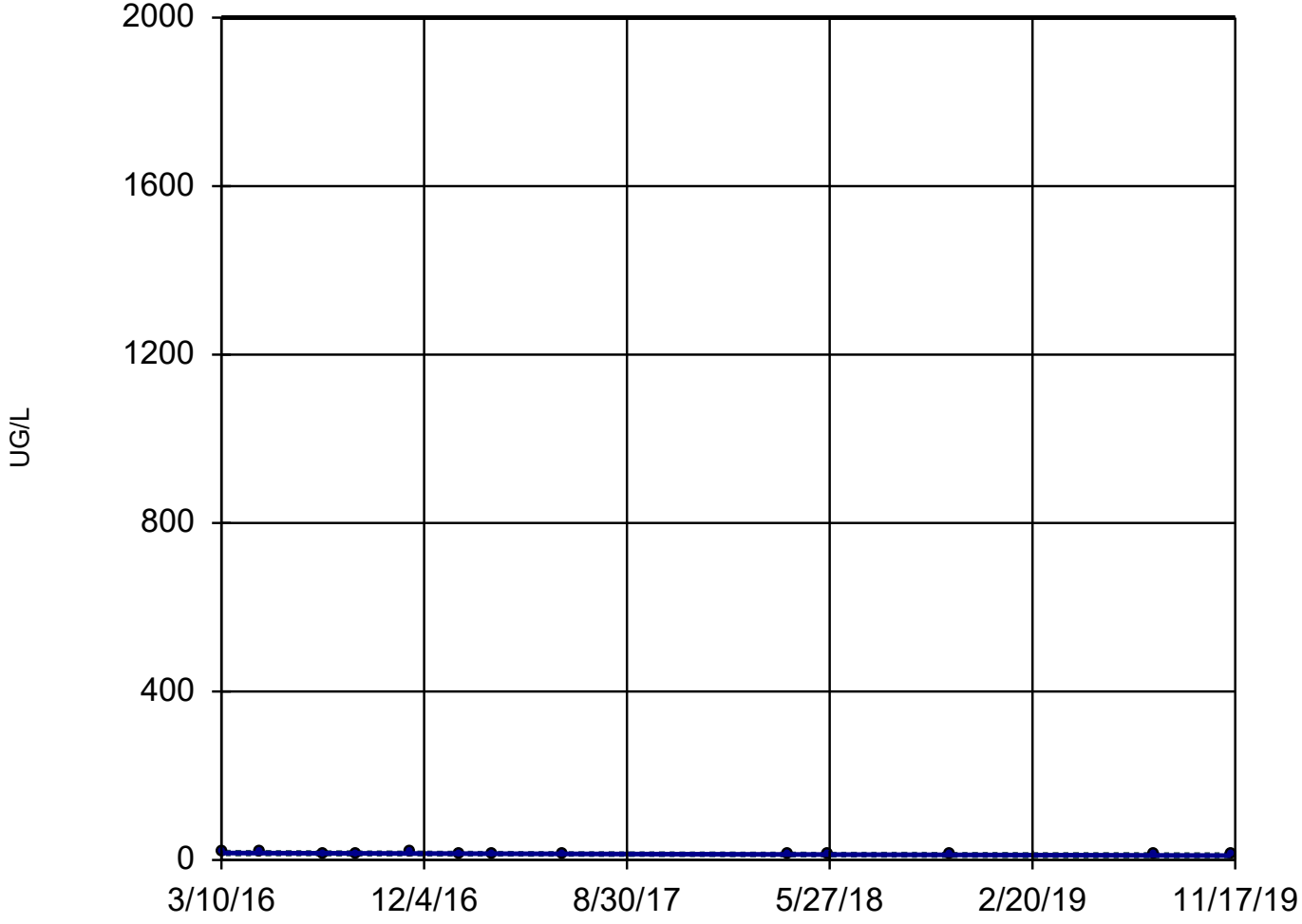
GWPS = 2000.

Constituent: BARIUM, TOTAL Analysis Run 3/4/2020 10:02 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-3



n = 13

Slope = -1.734 units per year.

Mann-Kendall statistic = -62
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

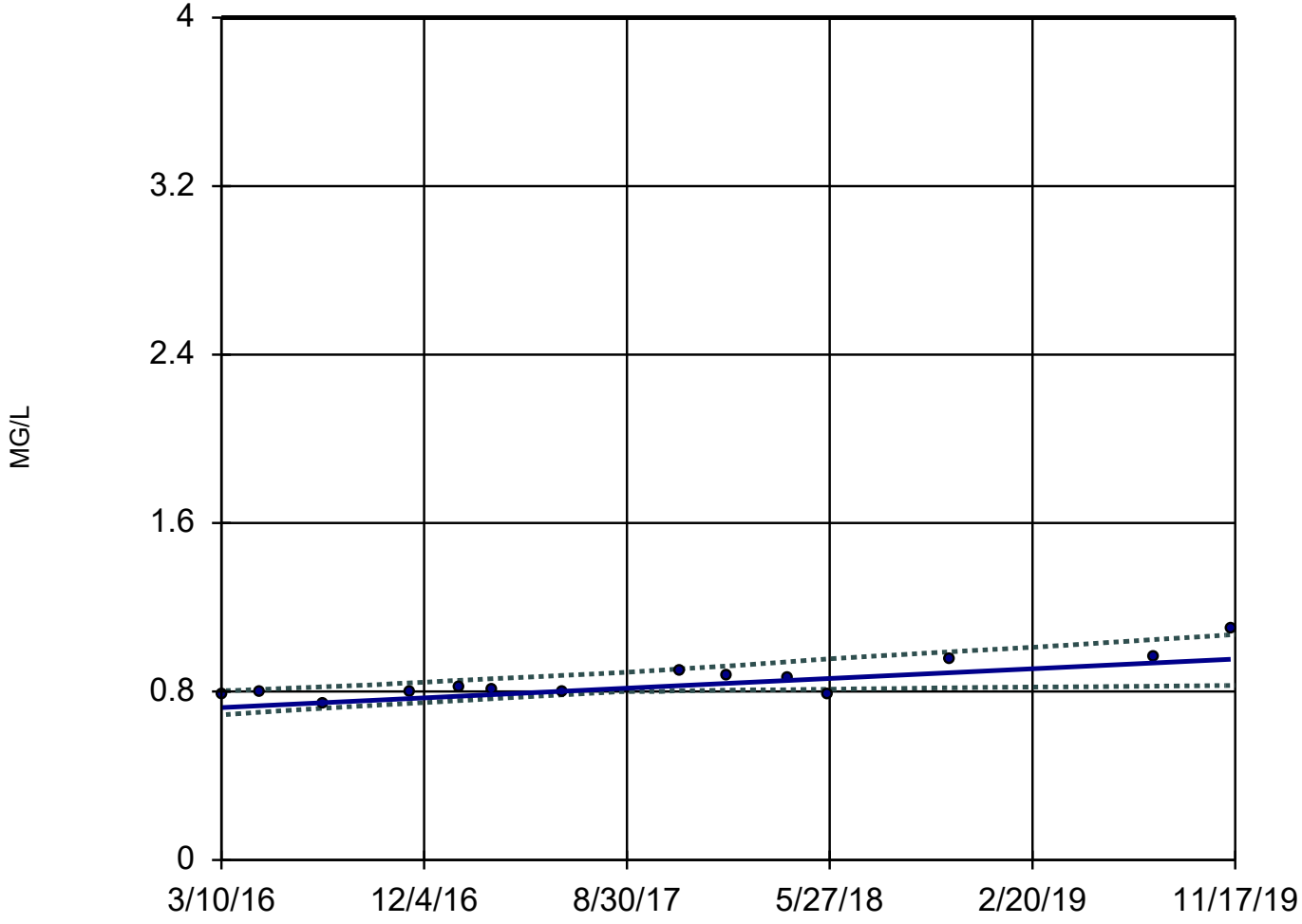
GWPS = 2000.

Constituent: BARIUM, TOTAL Analysis Run 3/4/2020 10:02 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-3



n = 14

Slope = 0.06243 units per year.

Mann-Kendall statistic = 55
critical = 44

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

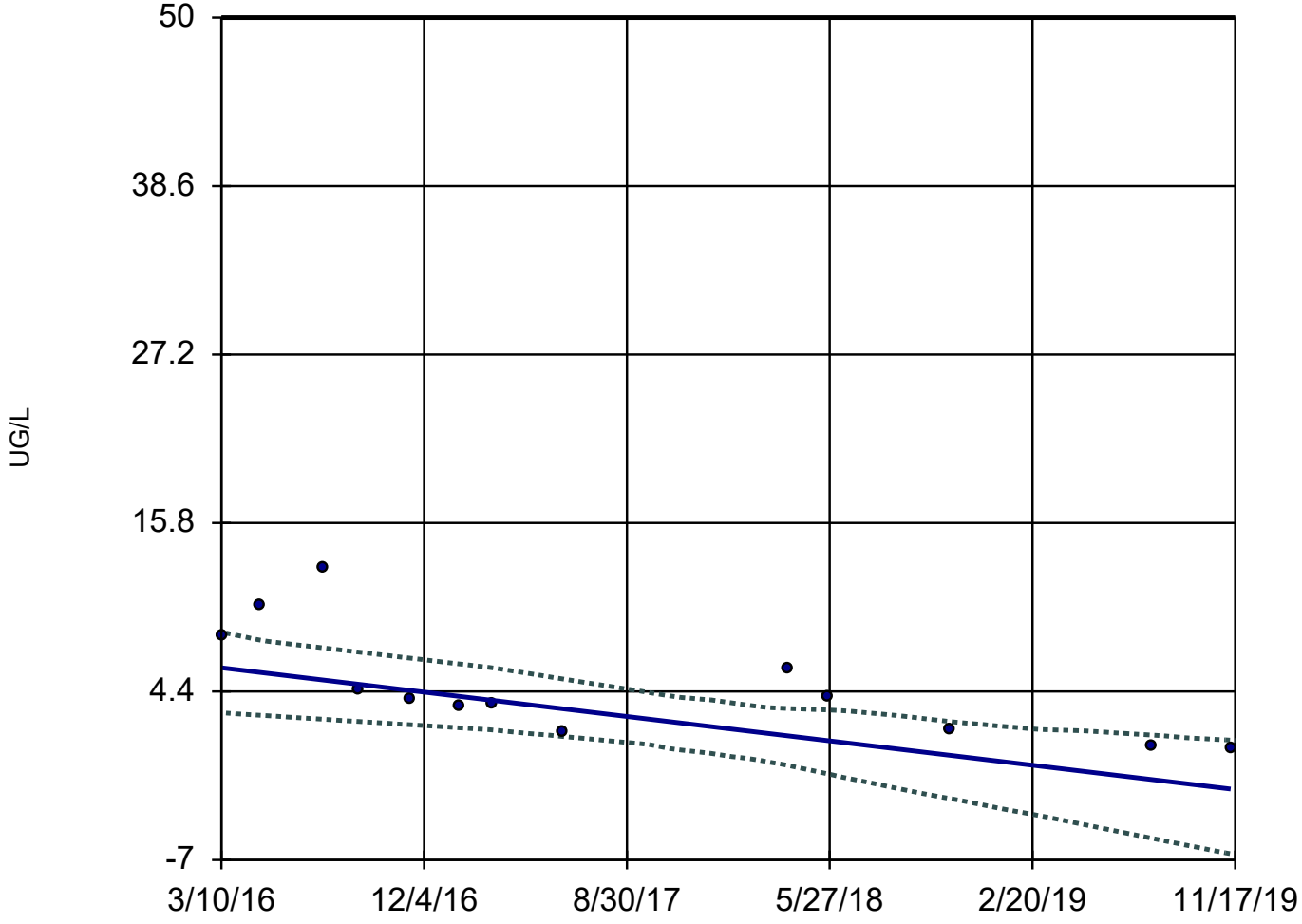
GWPS = 4.

Constituent: FLUORIDE, TOTAL Analysis Run 3/4/2020 10:02 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-1



n = 13

Slope = -2.234 units per year.

Mann-Kendall statistic = -50
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 50.

Constituent: SELENIUM, TOTAL Analysis Run 3/4/2020 10:03 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

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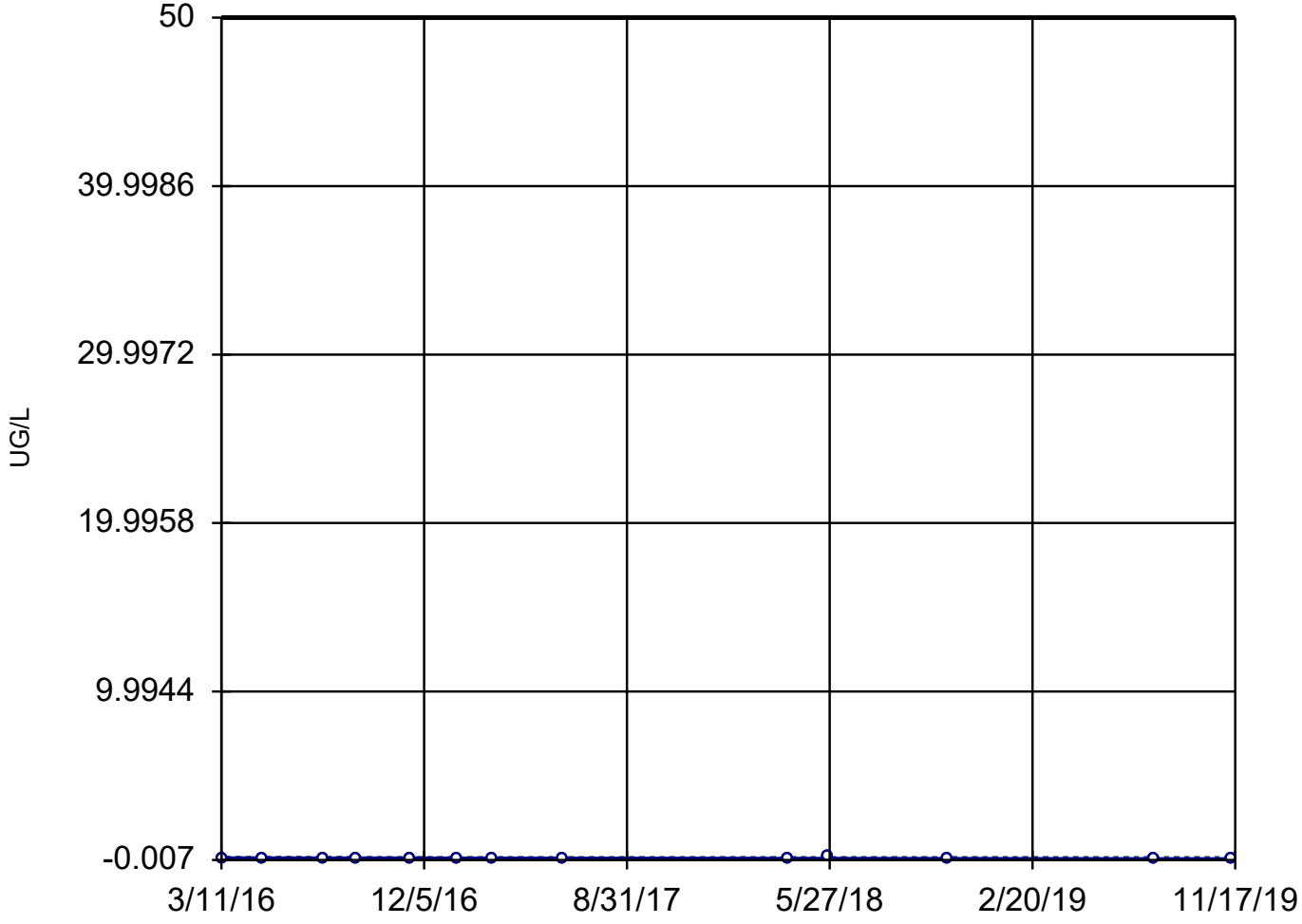
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-5



n = 13

Slope = -0.01374 units per year.

Mann-Kendall statistic = -44
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 50.

Constituent: SELENIUM, TOTAL Analysis Run 3/4/2020 10:03 AM

Rush Island E.C. Client: Ameren Data: RIEC Data

Trend Test

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 3/4/2020, 10:08 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
ANTIMONY, TOTAL (UG/L)	R-MW-1	-0.02274	-6	-39	No	13	23.08	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	**R-MW-2**	**-0.5212**	**-53**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
ANTIMONY, TOTAL (UG/L)	R-MW-3	0.01042	8	39	No	13	30.77	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-4	2.2e-9	11	35	No	12	75	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-5	0	7	31	No	11	100	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-6	0.001362	2	39	No	13	53.85	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-7	0.003032	11	44	No	14	71.43	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-P-19I	-2.773	-6	-8	No	4	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-1	1.737	22	35	No	12	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-2	-11.6	-33	-39	No	13	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-3	13.06	30	39	No	13	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-4	0	2	31	No	11	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-5	-0.3074	-23	-35	No	12	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-6	-0.09854	-8	-35	No	12	25	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-7	-9.087	-30	-39	No	13	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-P-19I	-27.86	-4	-8	No	4	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-1	0.2757	5	35	No	12	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	**R-MW-2**	**-2.392**	**-72**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
BARIUM, TOTAL (UG/L)	**R-MW-3**	**-1.734**	**-62**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
BARIUM, TOTAL (UG/L)	R-MW-4	-3.714	-13	-39	No	13	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-5	-6.297	-23	-35	No	12	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-6	1.091	1	35	No	12	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-7	-16.86	-42	-44	No	14	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-P-19I	-1.045	-2	-8	No	4	0	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-1	0.006446	15	35	No	12	75	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-2	0.01442	14	35	No	12	25	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-3	0.06669	29	35	No	12	66.67	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-4	0.001756	21	35	No	12	75	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-5	0	8	35	No	12	100	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-6	0	8	35	No	12	100	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-7	0.009691	31	39	No	13	69.23	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-P-19I	-0.03798	-2	-8	No	4	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-1	0.127	42	48	No	15	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-2	0.09522	24	48	No	15	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	**R-MW-3**	**0.06243**	**55**	**44**	**Yes**	**14**	**0**	**n/a**	**n/a**	**0.02**	**NP**
FLUORIDE, TOTAL (MG/L)	R-MW-4	0.006437	16	48	No	15	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-5	0.003698	5	44	No	14	7.143	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-6	0.01197	22	48	No	15	6.667	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-7	-0.00...	-11	-58	No	17	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-P-19I	0.2609	2	8	No	4	0	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-1	0	3	35	No	12	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-2	-0.3665	-3	-35	No	12	8.333	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-3	0.4539	13	35	No	12	8.333	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-4	0	3	31	No	11	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-5	0	6	27	No	10	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-6	0	1	31	No	11	90.91	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-7	0	11	35	No	12	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-P-19I	3.219	2	8	No	4	0	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-1	0	-2	-39	No	13	100	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-2	0	-1	-39	No	13	92.31	n/a	n/a	0.02	NP

Trend Test

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 3/4/2020, 10:08 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
LITHIUM, TOTAL (UG/L)	R-MW-3	0	-2	-39	No	13	100	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-4	-0.7349	-12	-39	No	13	0	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-5	0.04973	3	39	No	13	46.15	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-6	0.0681	11	39	No	13	69.23	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-7	3.566	27	44	No	14	0	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-P-19I	-3.294	-4	-8	No	4	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-1	13.13	20	39	No	13	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-2	-3.732	-10	-39	No	13	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-3	-32.03	-12	-39	No	13	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-4	0.103	2	39	No	13	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-5	0.08609	11	39	No	13	69.23	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-6	0.1571	10	39	No	13	38.46	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-7	-10.25	-26	-44	No	14	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-P-19I	-60.1	-2	-8	No	4	0	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-1	0.04708	13	39	No	13	100	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-2	0.1236	26	39	No	13	92.31	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-3	0.03557	14	39	No	13	92.31	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-4	0.06155	18	39	No	13	76.92	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-5	0.1149	30	39	No	13	76.92	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-6	0.08677	8	39	No	13	76.92	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-7	0.0483	22	35	No	12	100	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-P-19I	-0.2409	0	8	No	4	100	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	**R-MW-1**	**-2.234**	**-50**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
SELENIUM, TOTAL (UG/L)	R-MW-2	-0.1202	-15	-39	No	13	0	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-3	0	0	35	No	12	0	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-4	0.01474	27	39	No	13	46.15	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	**R-MW-5**	**-0.01374**	**-44**	**-39**	**Yes**	**13**	**100**	**n/a**	**n/a**	**0.02**	**NP**
SELENIUM, TOTAL (UG/L)	R-MW-6	-0.02829	-19	-39	No	13	23.08	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-7	0.001236	12	44	No	14	71.43	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-P-19I	-1.375	-4	-8	No	4	0	n/a	n/a	0.02	NP

APPENDIX C

April 2020 Assessment Monitoring Statistical Evaluation

TECHNICAL MEMORANDUM

DATE July 31, 2020 **Project No.** 153-140602

TO Bill Kutosky
Ameren Missouri

CC Susan Knowles, Craig Giesmann, Paul Pike, Charlie Henderson

FROM Jeffrey Ingram, Sean Paulsen and Mark Haddock **EMAIL JIngram@Golder.com**

ASSESSMENT MONITORING STATISTICAL EVALUATION FOR THE RCPA SURFACE IMPOUNDMENT, RUSH ISLAND ENERGY CENTER, JEFFERSON COUNTY, MISSOURI

This Technical Memorandum provides the results of the Assessment Monitoring Statistical Evaluation from the April 2020 sampling event for the RCPA Surface Impoundment at the Rush Island Energy Center located in Jefferson County, Missouri. Included in this memorandum is a brief summary of constituents that are present at a Statistically Significant Level (SSL), a list of site-specific Groundwater Protection Standards (**Table 1**), and the Sanitas Technologies™ (Sanitas) statistical software output for each of the tested Appendix IV parameters (**Appendix A** and **Appendix B**).

As a part of the updated Corrective Action Plan, monitoring well P19I was removed from the Detection and Assessment monitoring well network and added to the Corrective Action Network. Statistical analysis for P19I will now be completed as a part of the Corrective Action statistical analysis and not the Assessment Monitoring Analysis. All other monitoring wells in the network have remained the same.

The Appendix IV constituents were evaluated for SSLs using the methods and procedures outlined in the Groundwater Monitoring Plan's (GMP) Statistical Analysis Plan (SAP). The following statistical outlier was removed prior to the calculation of confidence limits:

- Cobalt
  - MW-6 at 2.3 J micrograms per liter (µg/L) on 7/31/2019; Result was statistically higher than other values at the the same well. The high result was not confirmed during subsequent sampling events.

Additionally, an analysis of the outliers removed to date was completed and several statistical outliers that were previously removed were added back into the dataset, as they are no longer outliers. The following statistical outlliers were added back into the dataset prior to the calculation of confidence limits:

- Antimony
  - MW-5 at 0.048 J µg/L on 6/8/2017 was originally removed as an outlier for the July 2019 event statistical analysis because the value was statistically higher than the other results at the same well. Additional sampling results have displayed a larger spatial variability in this well and it is no longer a statistical outlier.

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- Arsenic
  - MW-4 at 9.0 and 10.3 µg/L on 5/2/2016 and 3/11/2016, respecitivly, were removed as statistical outliers for the November 2018 event statistical analysis because the results were statistically higher than other values at the same well. Additional sampling has displayed a larger spatial variability at this well and these results are no longer statistical outliers.

One new SSL was identified in the April 2020 sampling event for Arsenic at MW-7/MW-7(R). Arsenic was an SSL at MW-7/MW-7(R) in the events prior to the November 2019 sampling event, and this is not the first time this well has been reported to be at an SSL for Arsenic. A summary of SSLs for the April 2020 sampling event is as follows:

- Arsenic at MW-2, MW-3 and MW-7/MW-7(R)
- Molybdenum at MW-2, MW-3 and MW-7/MW-7(R)

Golder appreciates this opportunity to provide hydrogeological and engineering support services to Ameren. If you have any questions or comments regarding the information provided, please call our office at (314) 984-8800.

Sincerely,

Jeffrey Ingram, R.G.
Project Geologist

Sean Paulsen, P.G.
Associate, Senior Consultant

JSI/SCP/MNH

Enclosures:
Table 1 – RCPA Groundwater Protection Standards
Appendix A – Sanitas Confidence Interval Statistical Output
Appendix B – Sanitas Trending Confidence Bands Statistical Output

Table 1 - RCPA Groundwater Protection Standards
RCPA Surface Impoundment
Rush Island Energy Center

Parameter	Units	MCL or Health Based GWPS	Site GWPS	Value to Return to Detection Monitoring [6]
Antimony	µg/L	6	6	DQR
Arsenic	µg/L	10	30	30
Barium	µg/L	2000	2000	564.3
Beryllium	µg/L	4	4	DQR
Cadmium	µg/L	5	5	DQR
Chromium	µg/L	100	100	5.422
Cobalt	µg/L	6	6	DQR
Fluoride	mg/L	4	4	0.2414
Lead	µg/L	15	15	DQR
Lithium	µg/L	40	64.7	64.7
Mercury	µg/L	2	2	DQR
Molybdenum	µg/L	100	100	DQR
Radium 226 + 228	pCi/L	5	5	2.865
Selenium	µg/L	50	50	DQR
Thallium	µg/L	2	2	DQR

Prepared by: JSI
Checked by: EMS
Reviewed by: SCP

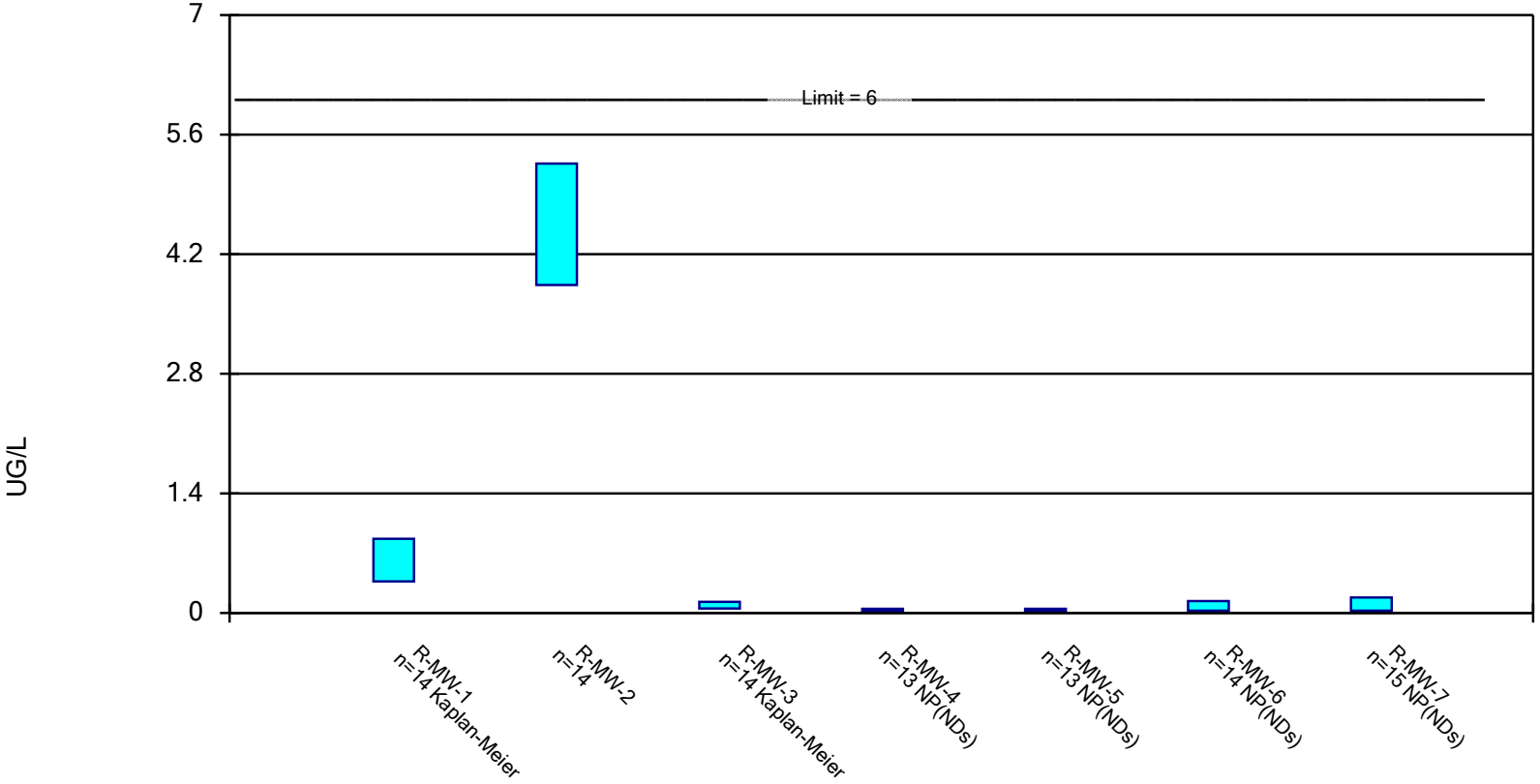
Notes:
1. µg/L - micrograms per liter
2. mg/L - milligrams per liter
3. pCi/L - picocuries per liter
4. MCL - Maximum Contaminant Level. MCLs from United States Environmental Protection Agency (USEPA) 2012 Edition of the Drinking Water Standards and Health Advisories. Spring 2012. http://water.epa.gov/drink/contaminants/index.cfm.
5. Health Based Groundwater Protection Standards (GWPS) were adoped for Appendix IV parameters without an MCL (i.e. cobalt, lithium, molybdenum, and lead). Information available at https://www.epa.gov/coalash/coal-ash-rule.
6. Values were calculated using statistical methods outlined for Detection Monitoring and are used for returning to Detection Monitoring based on available data to date.
7. DQR - Double Quantification Rule. If all baseline data are less than the Practical Quantitation Limit (PQL), then the DQR will be used. More information on the DQR is provided in the Statistical Analysis Plan.
8. Site GWPS is either the MCL/Health Based GWPS or based on background levels (calculated as described in the Statistical Analysis Plan for Assessment Monitoring), whichever is higher.
9. GWPS and background values calculated using results up through August 2019 from monitoring wells MW-B1 and MW-B2.

APPENDIX A

Sanitas Confidence Interval Statistical Output

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

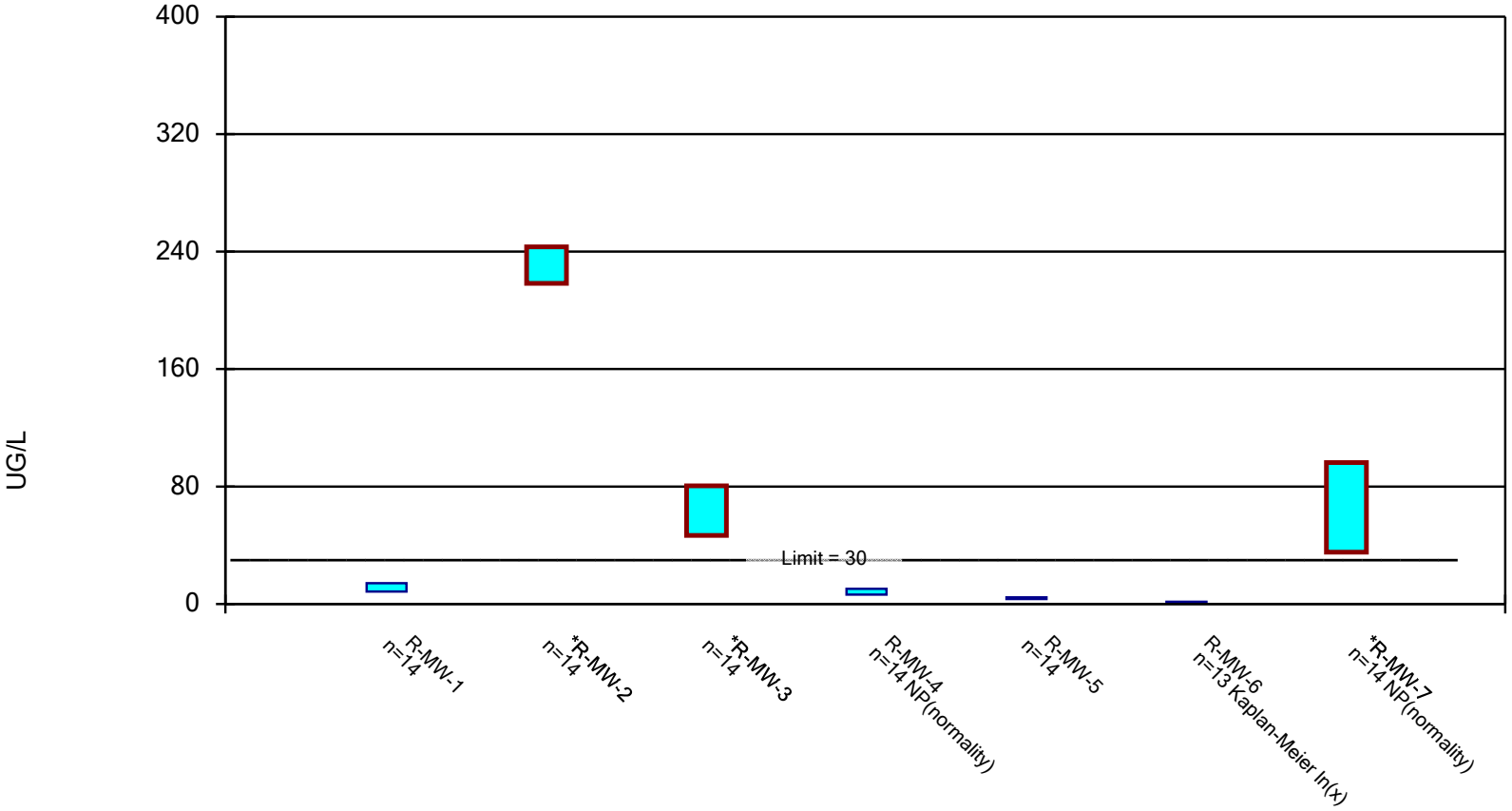


Constituent: ANTIMONY, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

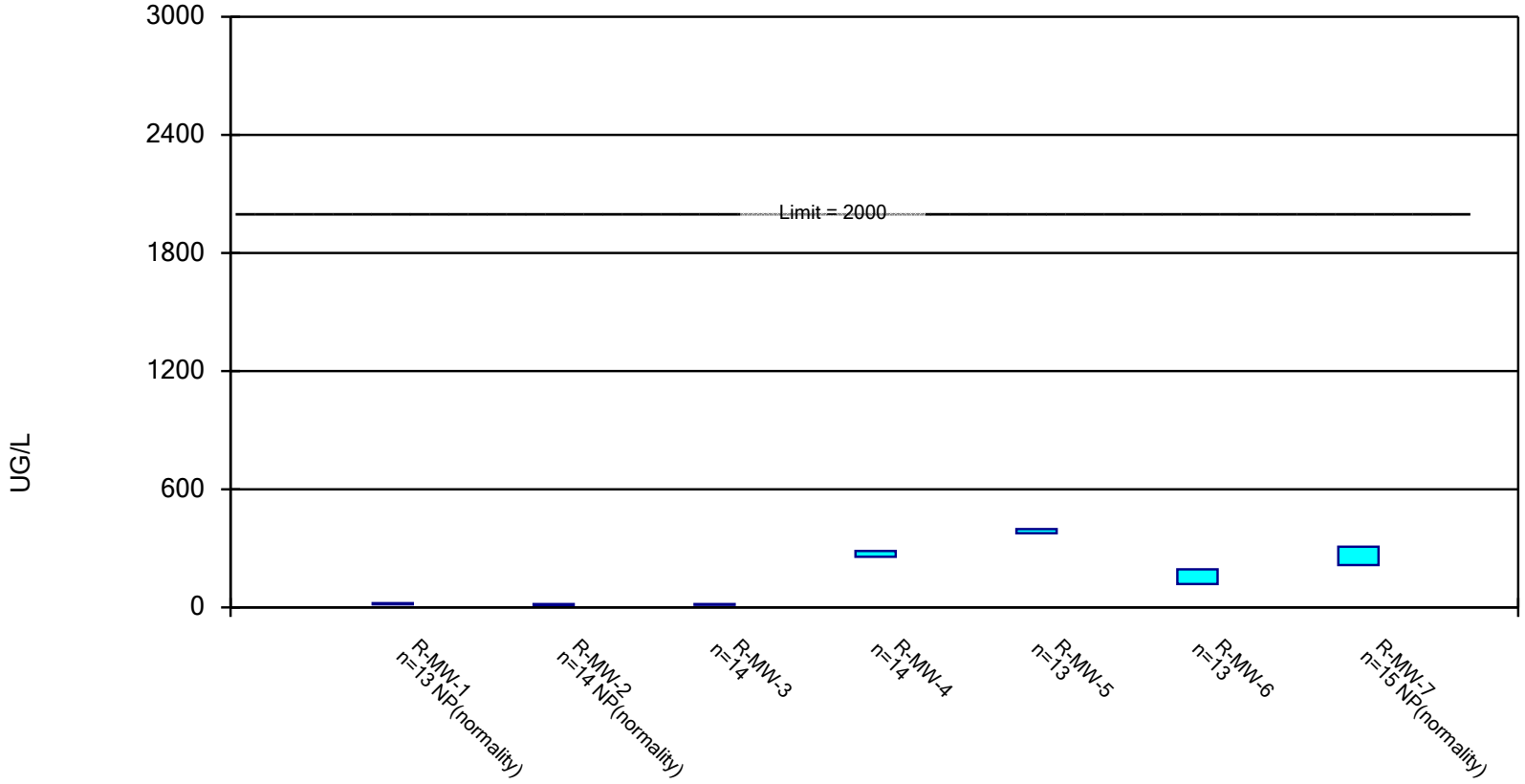


Constituent: ARSENIC, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

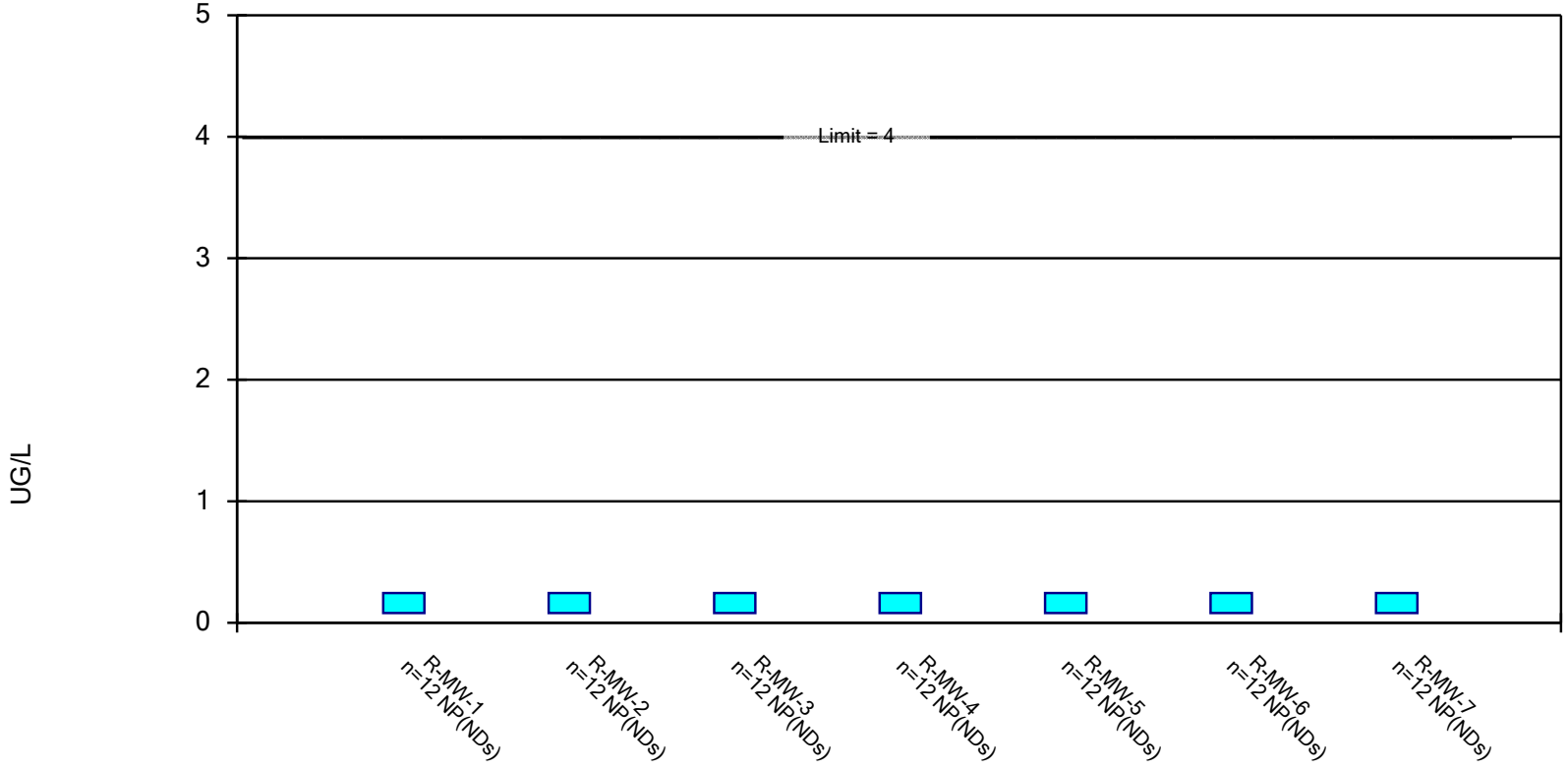


Constituent: BARIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

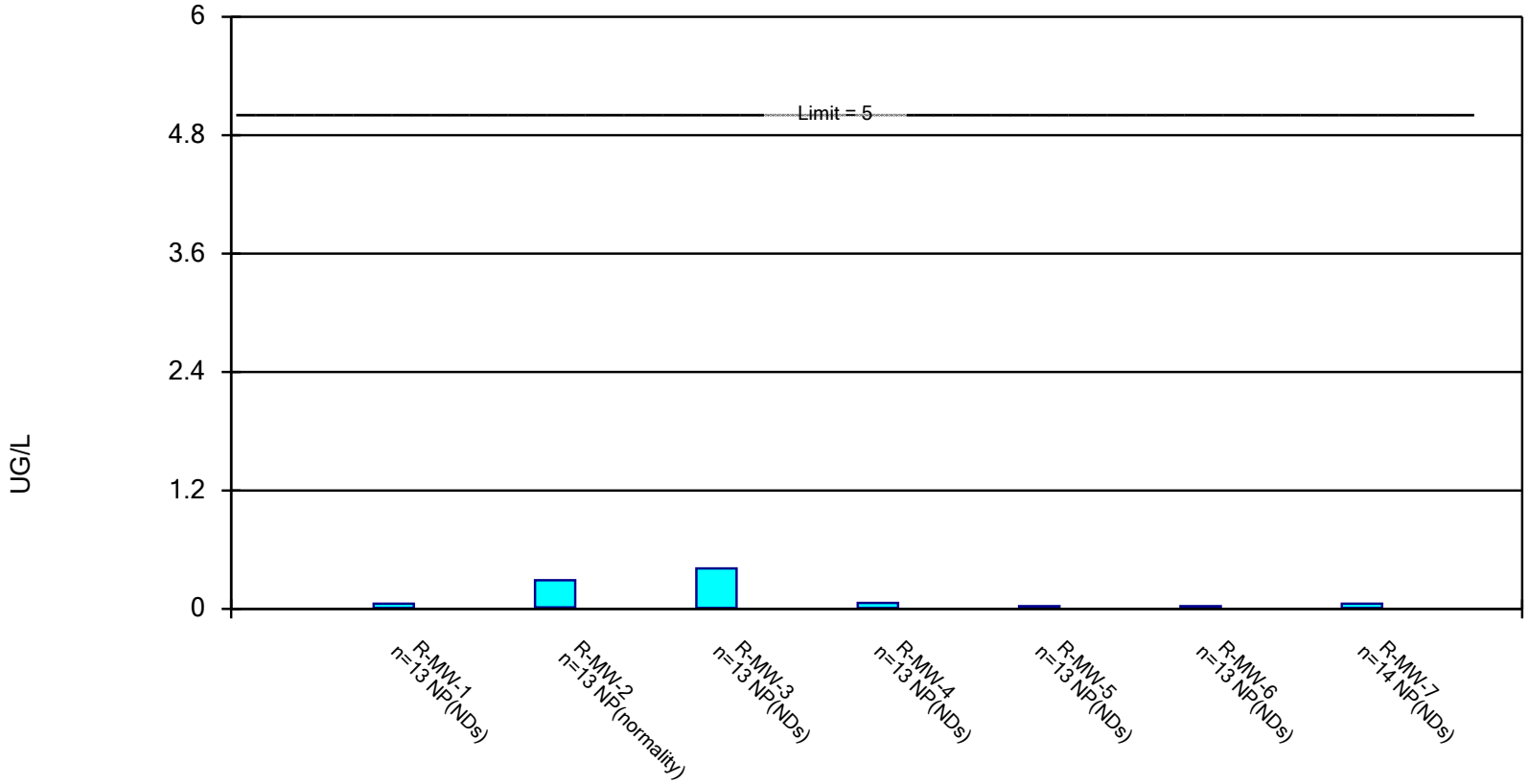


Constituent: BERYLLIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

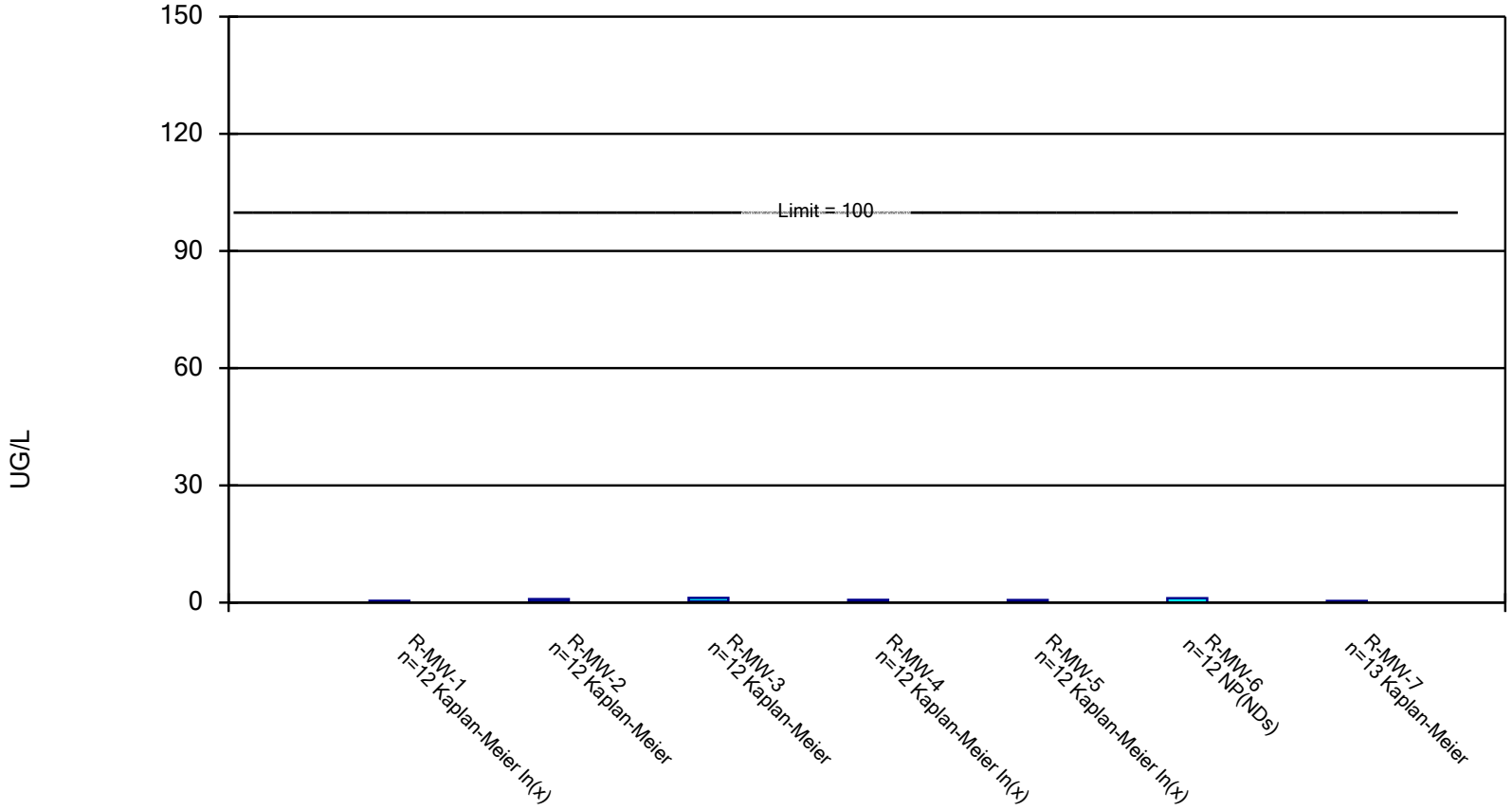


Constituent: CADMIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

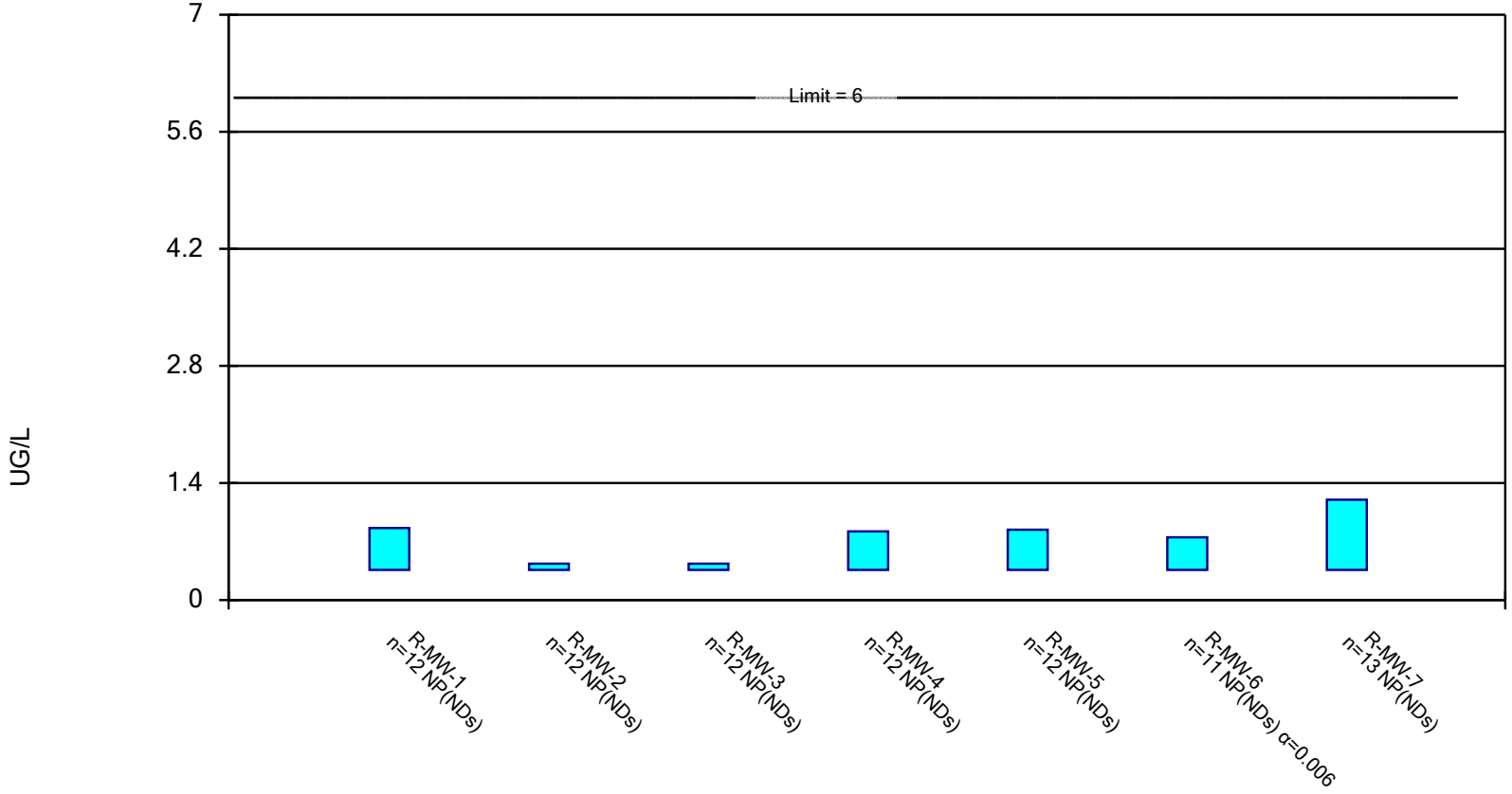


Constituent: CHROMIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

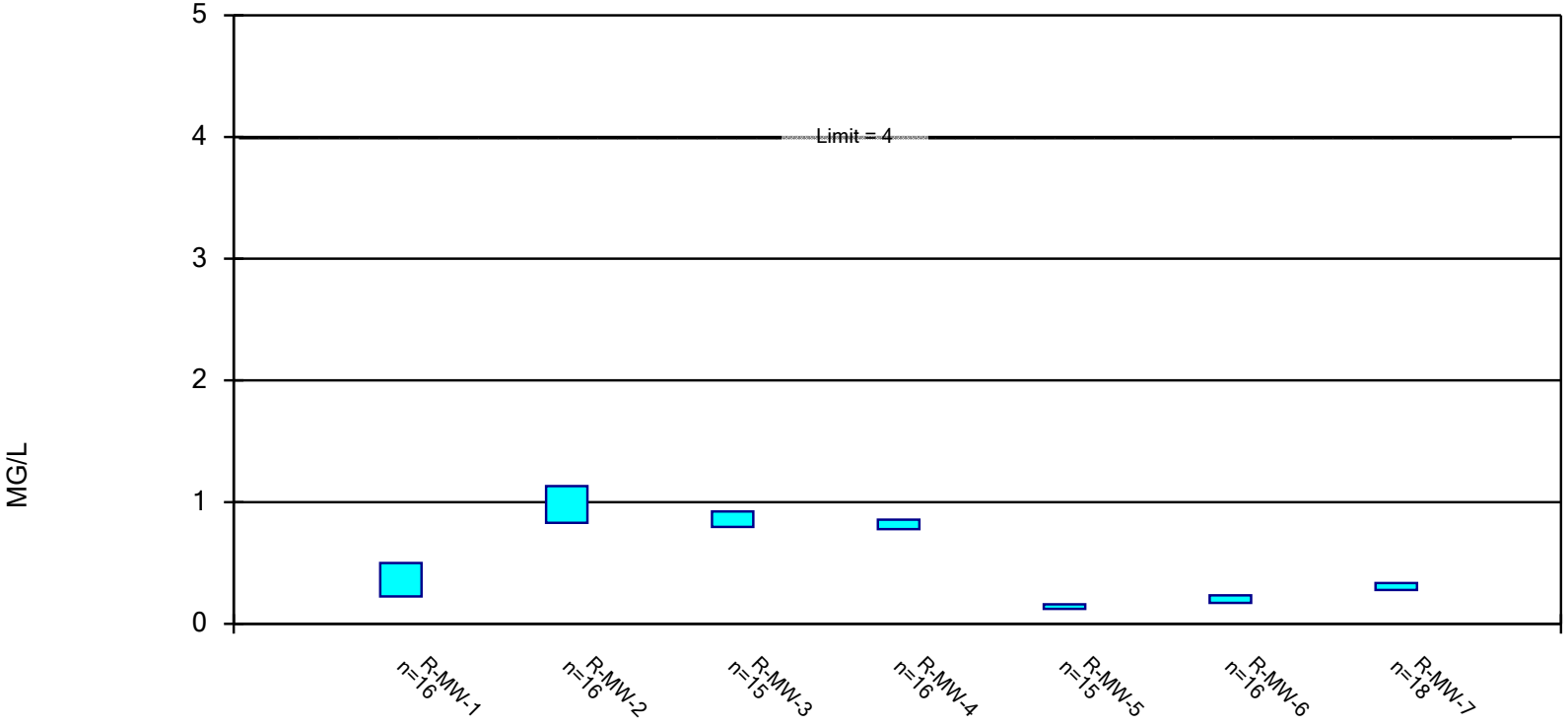


Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

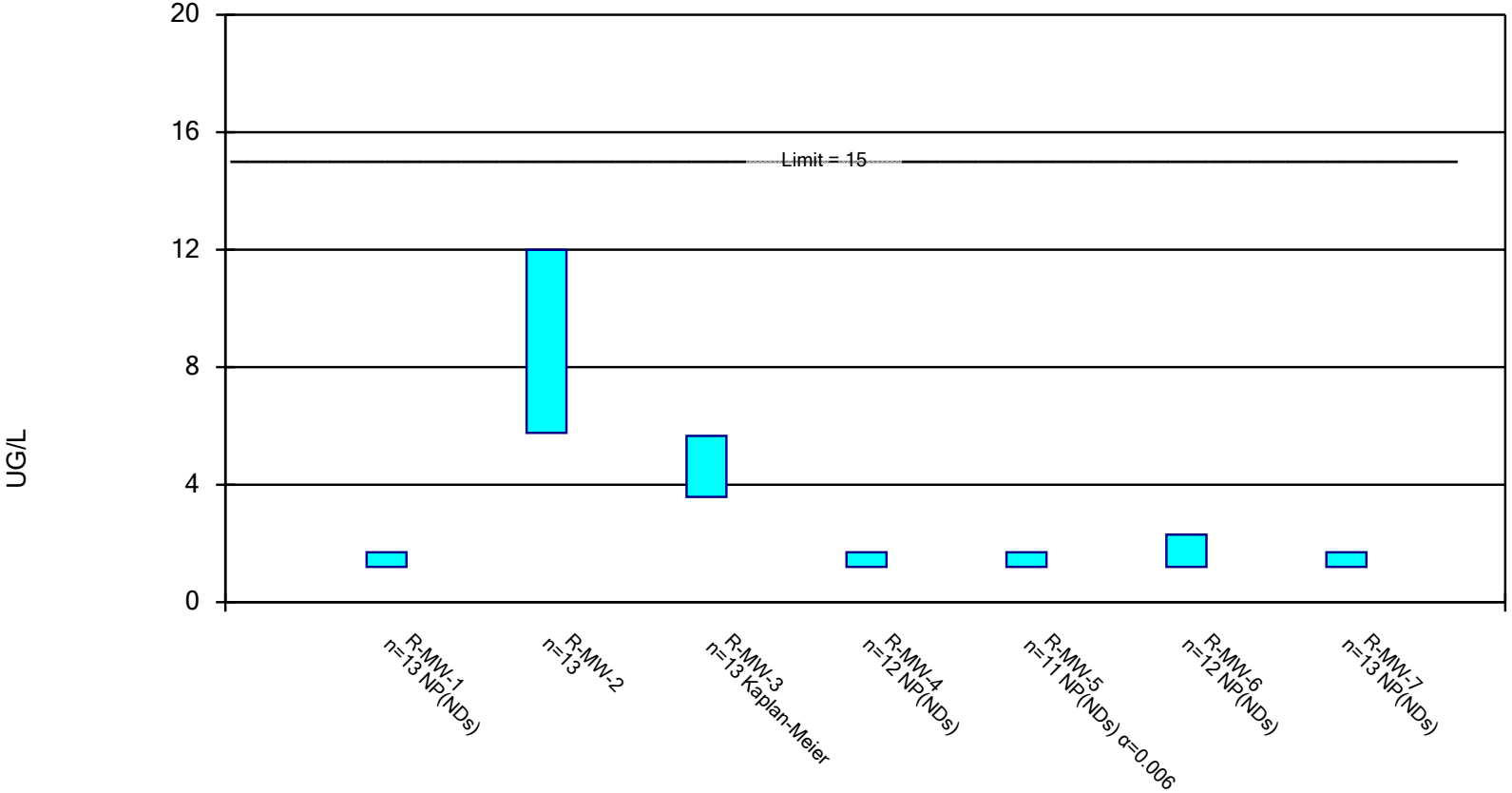


Constituent: FLUORIDE, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

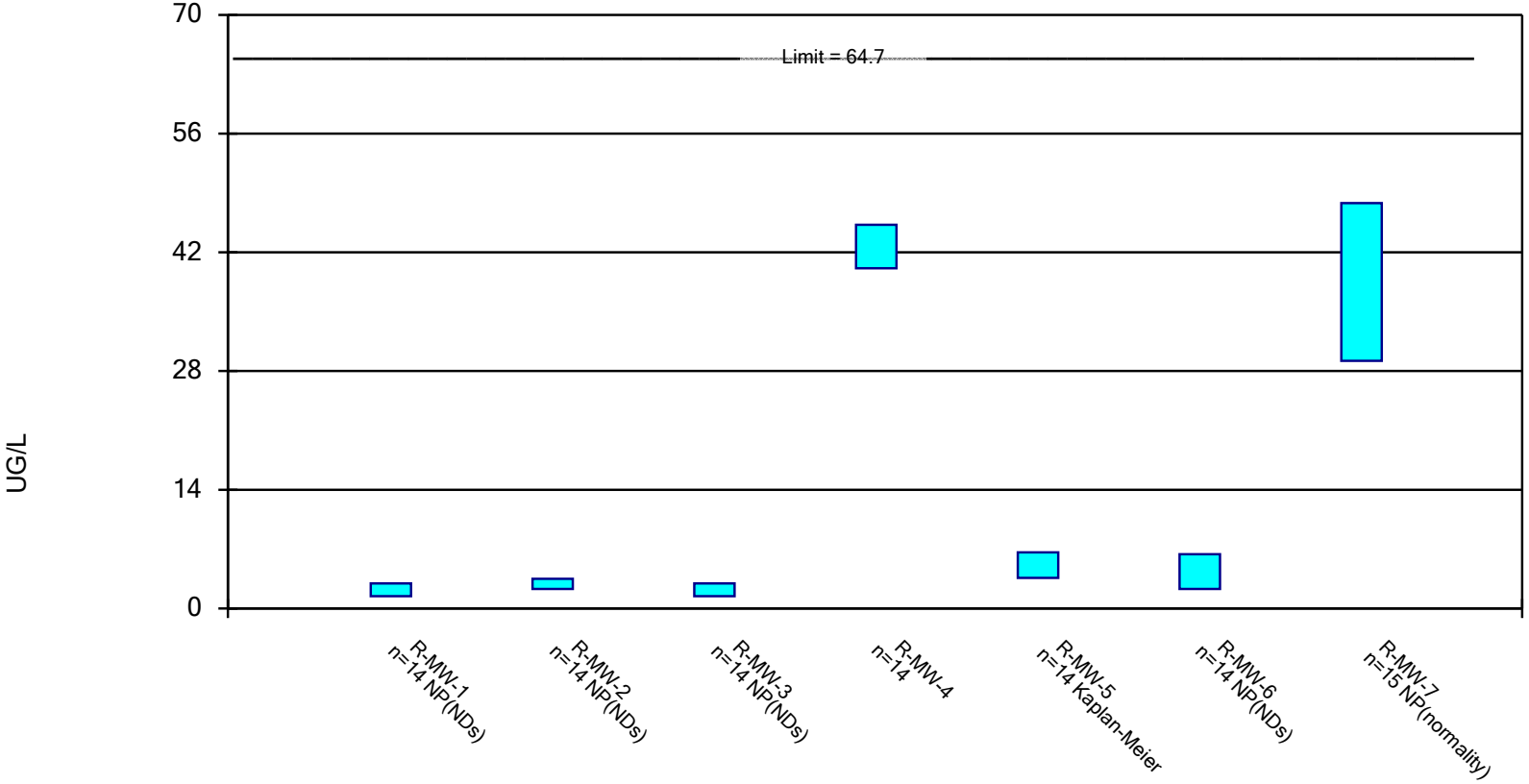


Constituent: LEAD, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

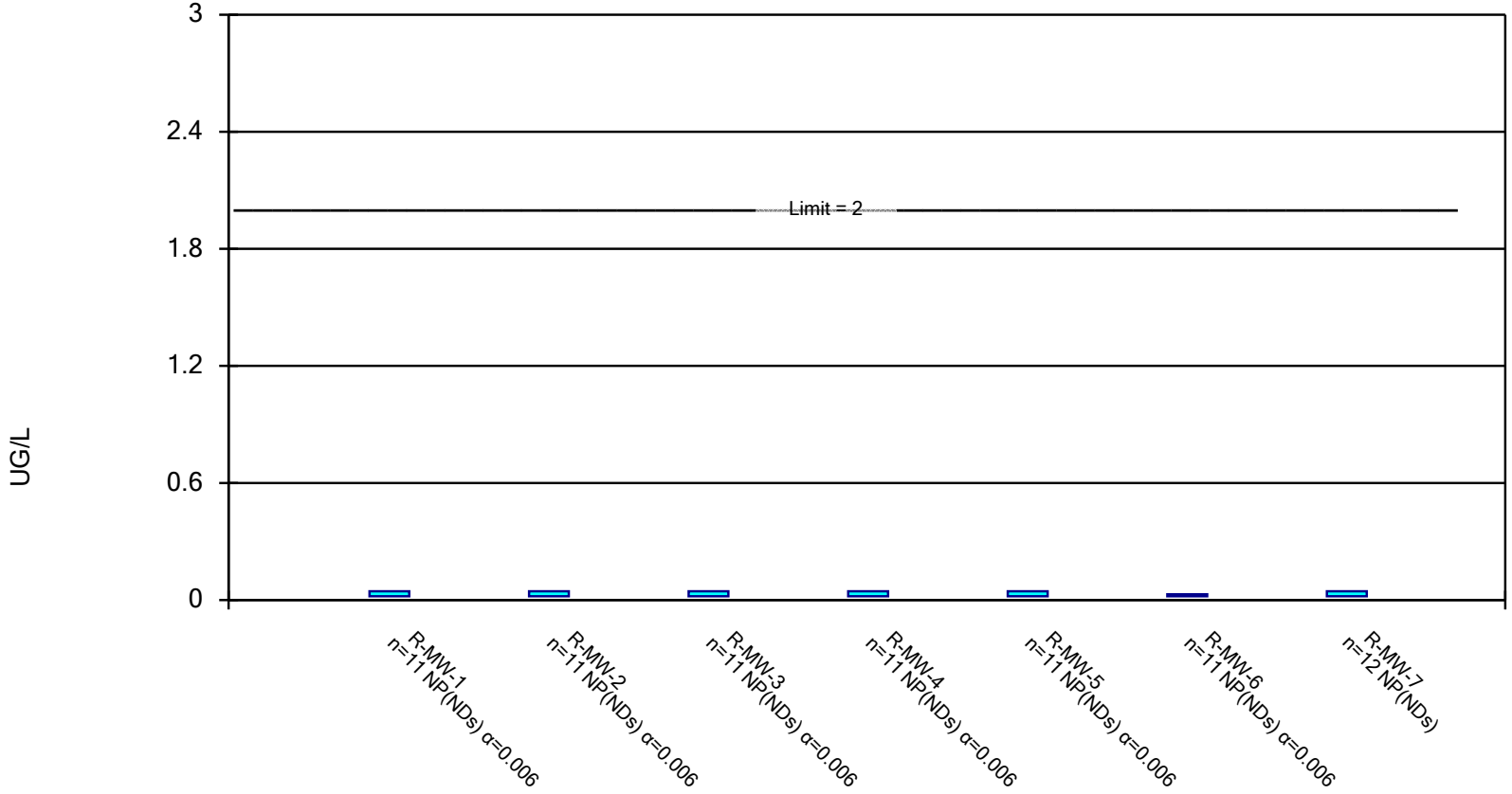


Constituent: LITHIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

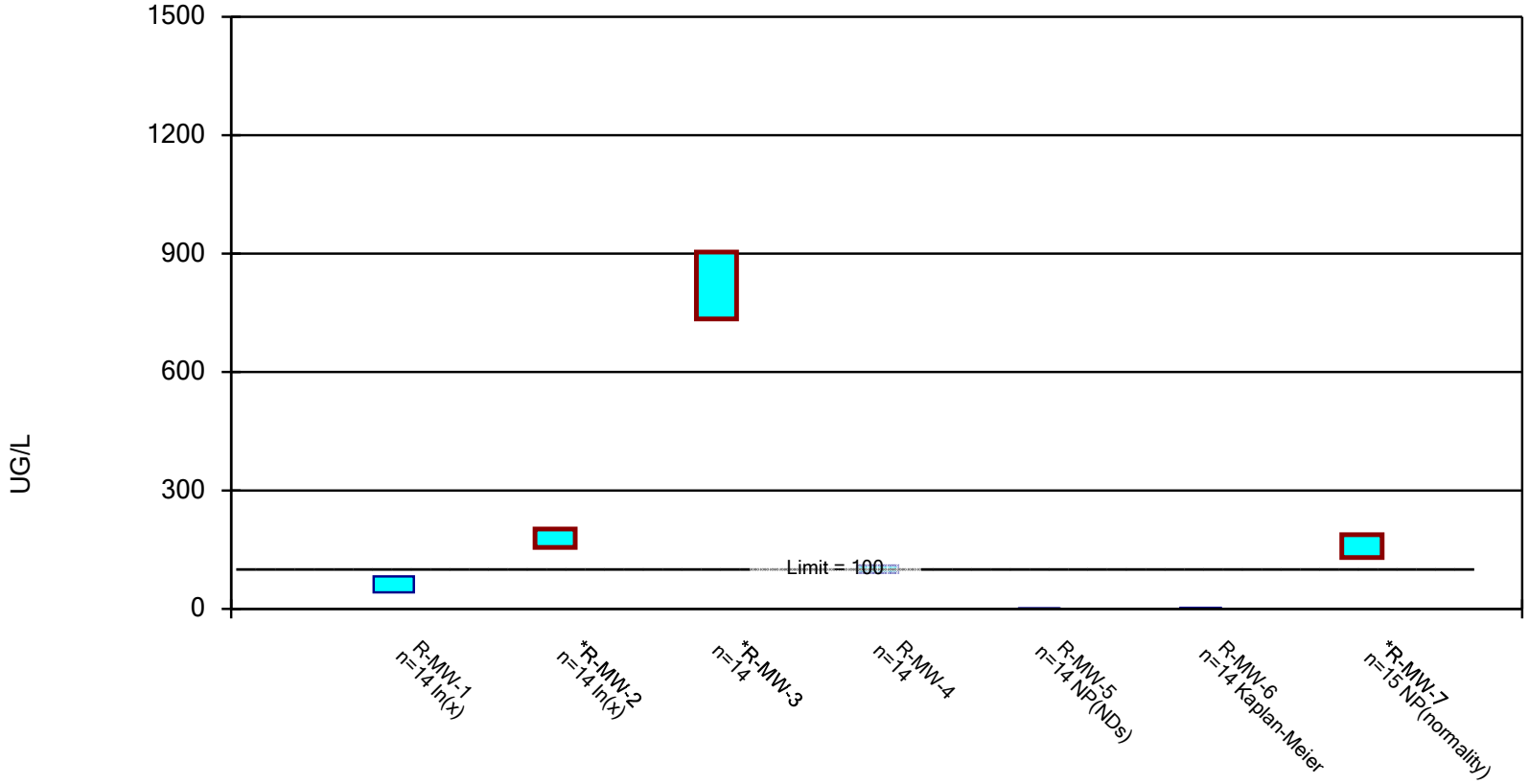


Constituent: MERCURY, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

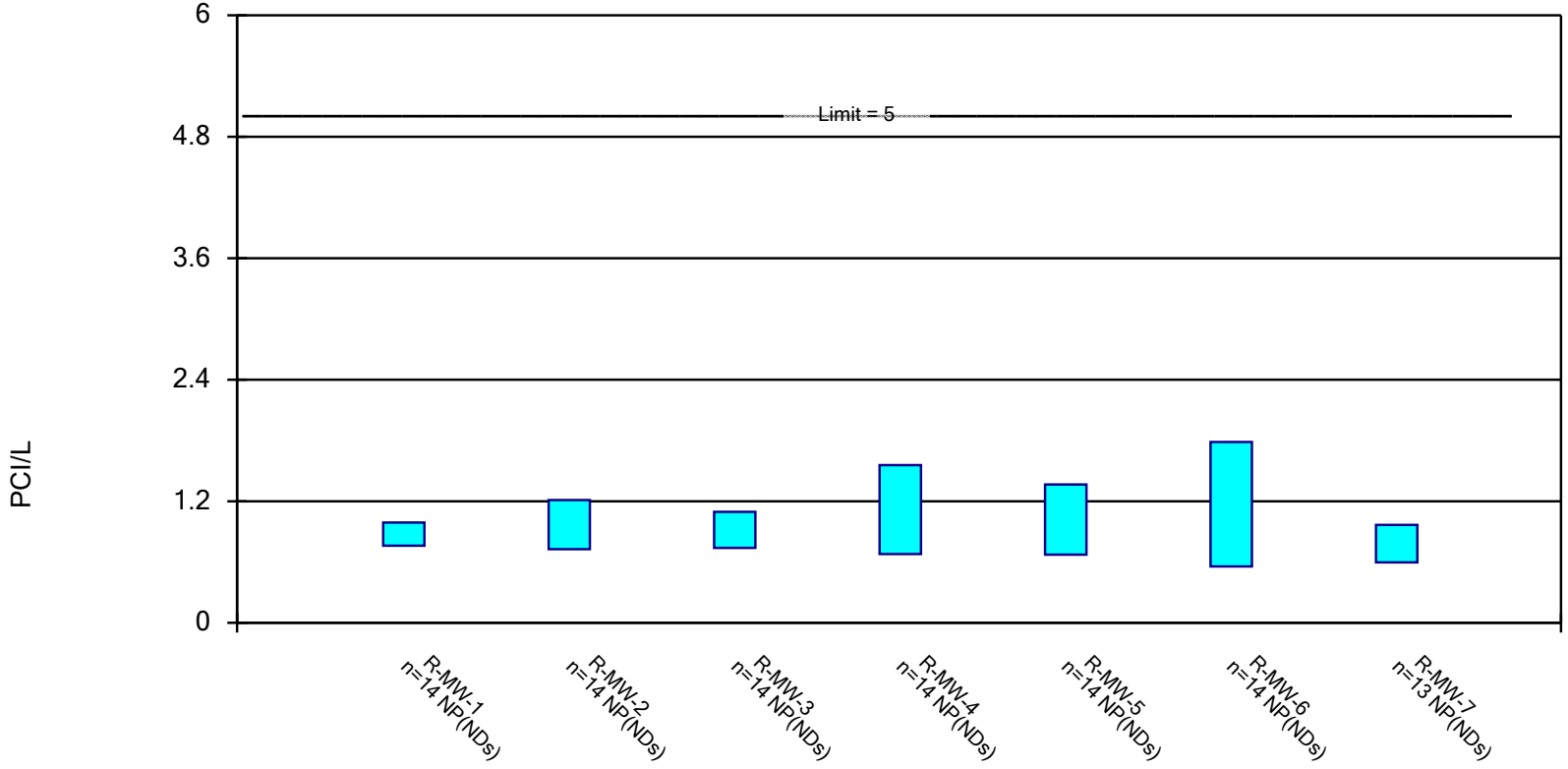


Constituent: MOLYBDENUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

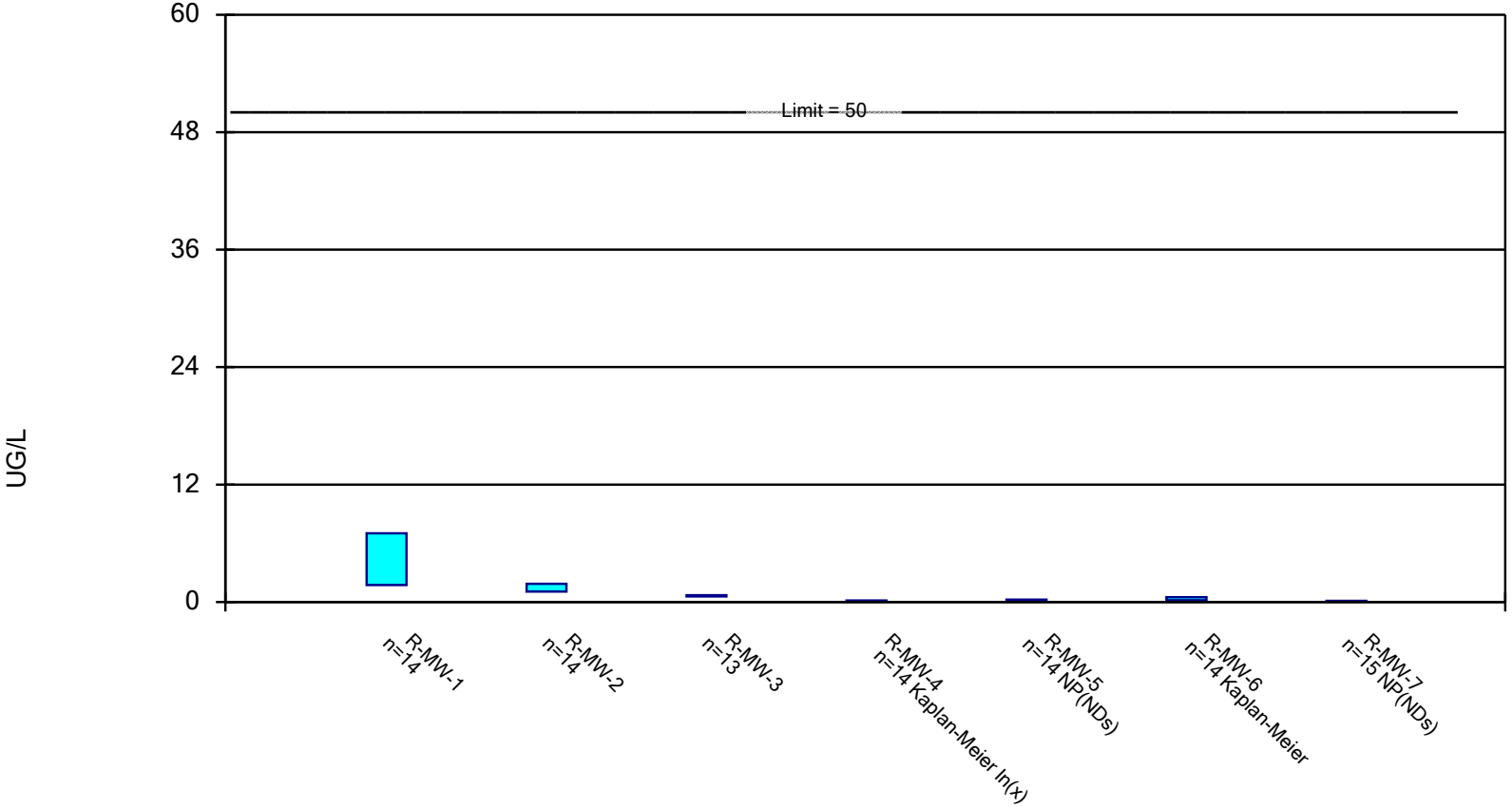


Constituent: RADIUM [226 + 228] Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

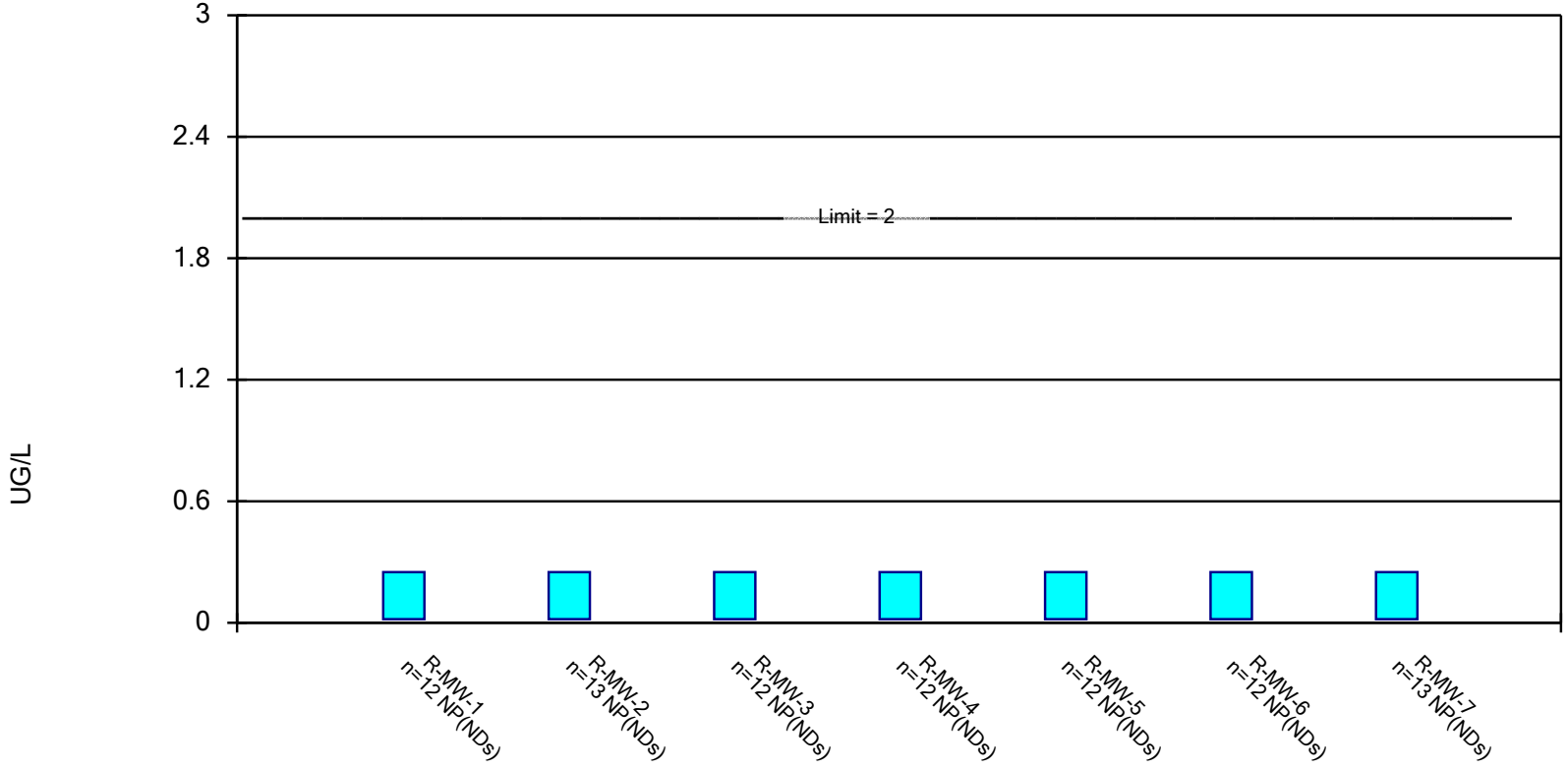


Constituent: SELENIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: THALLIUM, TOTAL Analysis Run 7/6/2020 12:52 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Confidence Interval

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 12:55 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
ANTIMONY, TOTAL (UG/L)	R-MW-1	0.8676	0.3688	6	No	14	21.43	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-2	5.261	3.839	6	No	14	0	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-3	0.1307	0.05127	6	No	14	28.57	No	0.01	Param.
ANTIMONY, TOTAL (UG/L)	R-MW-4	0.0485	0.0275	6	No	13	76.92	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-5	0.048	0.0275	6	No	13	92.31	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-6	0.14	0.0275	6	No	14	57.14	No	0.01	NP (NDs)
ANTIMONY, TOTAL (UG/L)	R-MW-7	0.18	0.0275	6	No	15	73.33	No	0.01	NP (NDs)
ARSENIC, TOTAL (UG/L)	R-MW-1	14.14	8.491	30	No	14	0	No	0.01	Param.
ARSENIC, TOTAL (UG/L)	**R-MW-2**	**243.2**	**218.4**	**30**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**
ARSENIC, TOTAL (UG/L)	**R-MW-3**	**80.52**	**46.73**	**30**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**
ARSENIC, TOTAL (UG/L)	R-MW-4	10.3	6.4	30	No	14	0	No	0.01	NP (normality)
ARSENIC, TOTAL (UG/L)	R-MW-5	4.493	3.421	30	No	14	0	No	0.01	Param.
ARSENIC, TOTAL (UG/L)	R-MW-6	1.547	0.1462	30	No	13	23.08	ln(x)	0.01	Param.
ARSENIC, TOTAL (UG/L)	**R-MW-7**	**96.3**	**35.3**	**30**	**Yes**	**14**	**0**	**No**	**0.01**	**NP (normality)**
BARIUM, TOTAL (UG/L)	R-MW-1	21.3	15.1	2000	No	13	0	No	0.01	NP (normality)
BARIUM, TOTAL (UG/L)	R-MW-2	17	9.5	2000	No	14	0	No	0.01	NP (normality)
BARIUM, TOTAL (UG/L)	R-MW-3	17.24	13.4	2000	No	14	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-4	286.5	256.8	2000	No	14	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-5	397.5	376.6	2000	No	13	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-6	193.6	118.7	2000	No	13	0	No	0.01	Param.
BARIUM, TOTAL (UG/L)	R-MW-7	308	215	2000	No	15	0	No	0.01	NP (normality)
BERYLLIUM, TOTAL (UG/L)	R-MW-1	0.245	0.08	4	No	12	100	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-2	0.245	0.08	4	No	12	100	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-3	0.245	0.08	4	No	12	91.67	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-4	0.245	0.08	4	No	12	100	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-5	0.245	0.08	4	No	12	100	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-6	0.245	0.08	4	No	12	91.67	No	0.01	NP (NDs)
BERYLLIUM, TOTAL (UG/L)	R-MW-7	0.245	0.08	4	No	12	100	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-1	0.052	0.009	5	No	13	76.92	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-2	0.29	0.0145	5	No	13	23.08	No	0.01	NP (normality)
CADMIUM, TOTAL (UG/L)	R-MW-3	0.41	0.009	5	No	13	61.54	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-4	0.06	0.009	5	No	13	69.23	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-5	0.028	0.009	5	No	13	100	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-6	0.028	0.009	5	No	13	100	No	0.01	NP (NDs)
CADMIUM, TOTAL (UG/L)	R-MW-7	0.053	0.009	5	No	14	71.43	No	0.01	NP (NDs)
CHROMIUM, TOTAL (UG/L)	R-MW-1	0.4613	0.06113	100	No	12	50	ln(x)	0.01	Param.
CHROMIUM, TOTAL (UG/L)	R-MW-2	0.8745	0.2575	100	No	12	25	No	0.01	Param.
CHROMIUM, TOTAL (UG/L)	R-MW-3	1.201	0.2824	100	No	12	25	No	0.01	Param.
CHROMIUM, TOTAL (UG/L)	R-MW-4	0.6822	0.1493	100	No	12	25	ln(x)	0.01	Param.
CHROMIUM, TOTAL (UG/L)	R-MW-5	0.6555	0.1512	100	No	12	16.67	ln(x)	0.01	Param.
CHROMIUM, TOTAL (UG/L)	R-MW-6	1.1	0.027	100	No	12	58.33	No	0.01	NP (NDs)
CHROMIUM, TOTAL (UG/L)	R-MW-7	0.4155	0.1191	100	No	13	30.77	No	0.01	Param.
COBALT, TOTAL (UG/L)	R-MW-1	0.86	0.36	6	No	12	83.33	No	0.01	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-2	0.435	0.36	6	No	12	100	No	0.01	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-3	0.435	0.36	6	No	12	100	No	0.01	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-4	0.82	0.36	6	No	12	75	No	0.01	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-5	0.84	0.36	6	No	12	83.33	No	0.01	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-6	0.75	0.36	6	No	11	90.91	No	0.006	NP (NDs)
COBALT, TOTAL (UG/L)	R-MW-7	1.2	0.36	6	No	13	76.92	No	0.01	NP (NDs)
FLUORIDE, TOTAL (MG/L)	R-MW-1	0.4995	0.2255	4	No	16	0	No	0.01	Param.

Confidence Interval

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 12:55 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
FLUORIDE, TOTAL (MG/L)	R-MW-2	1.131	0.8303	4	No	16	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-3	0.9236	0.7964	4	No	15	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-4	0.8555	0.7782	4	No	16	0	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-5	0.1609	0.1224	4	No	15	6.667	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-6	0.2344	0.1724	4	No	16	6.25	No	0.01	Param.
FLUORIDE, TOTAL (MG/L)	R-MW-7	0.3346	0.2776	4	No	18	0	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-1	1.7	1.2	15	No	13	100	No	0.01	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-2	12	5.764	15	No	13	7.692	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-3	5.662	3.585	15	No	13	15.38	No	0.01	Param.
LEAD, TOTAL (UG/L)	R-MW-4	1.7	1.2	15	No	12	100	No	0.01	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-5	1.7	1.2	15	No	11	100	No	0.006	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-6	2.3	1.2	15	No	12	91.67	No	0.01	NP (NDs)
LEAD, TOTAL (UG/L)	R-MW-7	1.7	1.2	15	No	13	100	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-1	2.95	1.45	64.7	No	14	100	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-2	3.5	2.3	64.7	No	14	85.71	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-3	2.95	1.45	64.7	No	14	92.86	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-4	45.25	40.13	64.7	No	14	0	No	0.01	Param.
LITHIUM, TOTAL (UG/L)	R-MW-5	6.607	3.606	64.7	No	14	42.86	No	0.01	Param.
LITHIUM, TOTAL (UG/L)	R-MW-6	6.4	2.3	64.7	No	14	64.29	No	0.01	NP (NDs)
LITHIUM, TOTAL (UG/L)	R-MW-7	47.8	29.2	64.7	No	15	0	No	0.01	NP (normality)
MERCURY, TOTAL (UG/L)	R-MW-1	0.045	0.0195	2	No	11	90.91	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-2	0.045	0.0195	2	No	11	90.91	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-3	0.045	0.0195	2	No	11	90.91	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-4	0.045	0.0195	2	No	11	90.91	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-5	0.045	0.0195	2	No	11	90.91	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-6	0.029	0.0195	2	No	11	100	No	0.006	NP (NDs)
MERCURY, TOTAL (UG/L)	R-MW-7	0.0445	0.0195	2	No	12	100	No	0.01	NP (NDs)
MOLYBDENUM, TOTAL (UG/L)	R-MW-1	82.2	41.96	100	No	14	0	ln(x)	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	**R-MW-2**	**202.3**	**155.9**	**100**	**Yes**	**14**	**0**	**ln(x)**	**0.01**	**Param.**
MOLYBDENUM, TOTAL (UG/L)	**R-MW-3**	**903.8**	**734.7**	**100**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**
MOLYBDENUM, TOTAL (UG/L)	R-MW-4	109.8	91.2	100	No	14	0	No	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	R-MW-5	1.3	0.26	100	No	14	71.43	No	0.01	NP (NDs)
MOLYBDENUM, TOTAL (UG/L)	R-MW-6	2.672	0.8199	100	No	14	35.71	No	0.01	Param.
MOLYBDENUM, TOTAL (UG/L)	**R-MW-7**	**188**	**130**	**100**	**Yes**	**15**	**0**	**No**	**0.01**	**NP (normality)**
RADIUM [226 + 228] (PCI/L)	R-MW-1	0.99	0.7615	5	No	14	100	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-2	1.211	0.727	5	No	14	92.86	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-3	1.094	0.7395	5	No	14	92.86	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-4	1.556	0.6785	5	No	14	78.57	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-5	1.366	0.672	5	No	14	78.57	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-6	1.785	0.556	5	No	14	71.43	No	0.01	NP (NDs)
RADIUM [226 + 228] (PCI/L)	R-MW-7	0.9655	0.5965	5	No	13	92.31	No	0.01	NP (NDs)
SELENIUM, TOTAL (UG/L)	R-MW-1	7.021	1.738	50	No	14	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-2	1.865	1.067	50	No	14	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-3	0.6885	0.5715	50	No	13	0	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-4	0.1533	0.1032	50	No	14	50	ln(x)	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-5	0.25	0.0425	50	No	14	100	No	0.01	NP (NDs)
SELENIUM, TOTAL (UG/L)	R-MW-6	0.4983	0.1852	50	No	14	21.43	No	0.01	Param.
SELENIUM, TOTAL (UG/L)	R-MW-7	0.12	0.043	50	No	15	73.33	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-1	0.25	0.018	2	No	12	91.67	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-2	0.25	0.018	2	No	13	100	No	0.01	NP (NDs)

Confidence Interval

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 12:55 PM

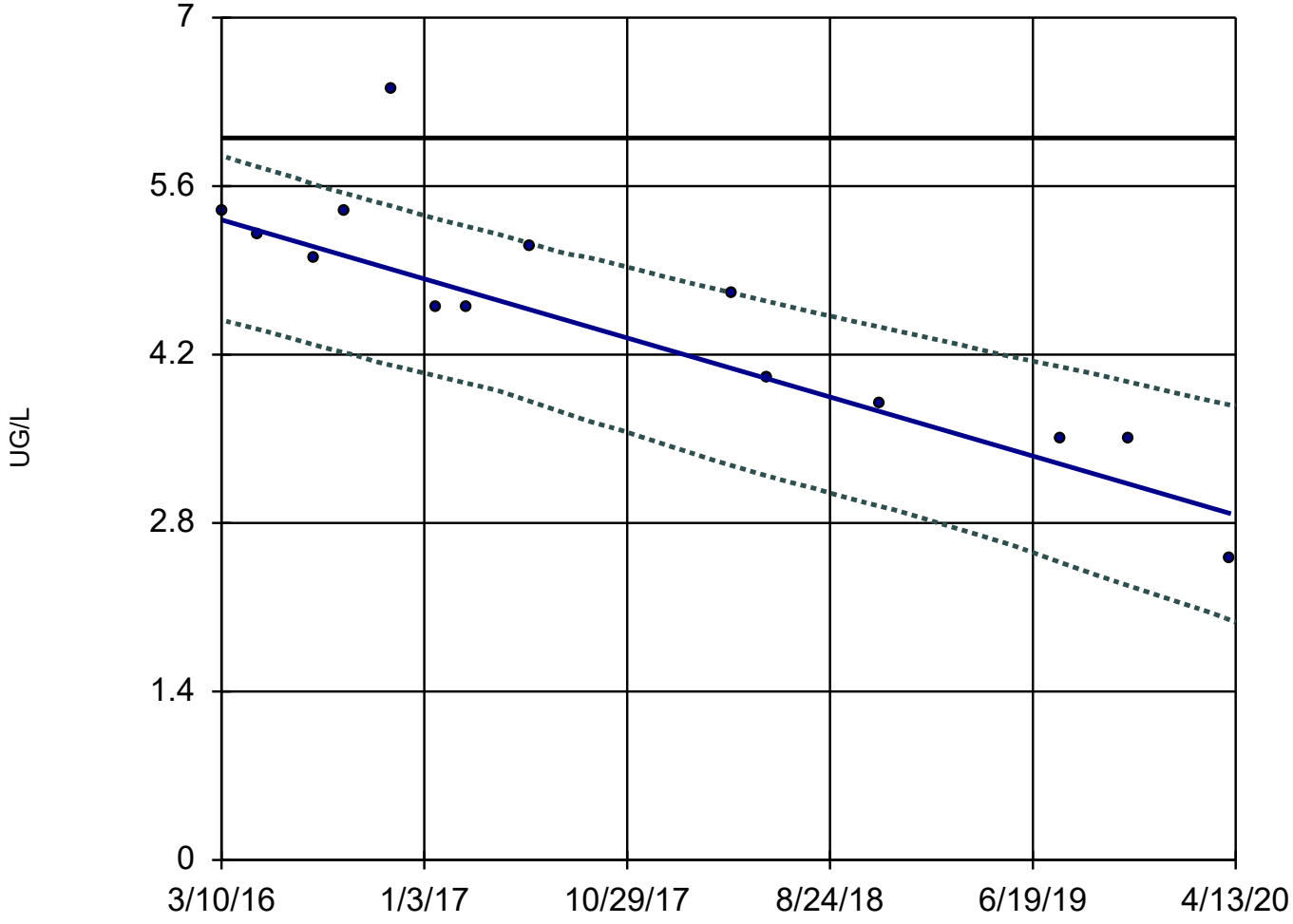
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
THALLIUM, TOTAL (UG/L)	R-MW-3	0.25	0.018	2	No	12	100	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-4	0.25	0.018	2	No	12	100	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-5	0.25	0.018	2	No	12	100	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-6	0.25	0.018	2	No	12	91.67	No	0.01	NP (NDs)
THALLIUM, TOTAL (UG/L)	R-MW-7	0.25	0.018	2	No	13	92.31	No	0.01	NP (NDs)

APPENDIX B

Sanitas Trending Confidence Bands Statistical Output

Sen's Slope and 95% Confidence Band

R-MW-2



n = 14

Slope = -0.5989 units per year.

Mann-Kendall statistic = -66
critical = -44

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

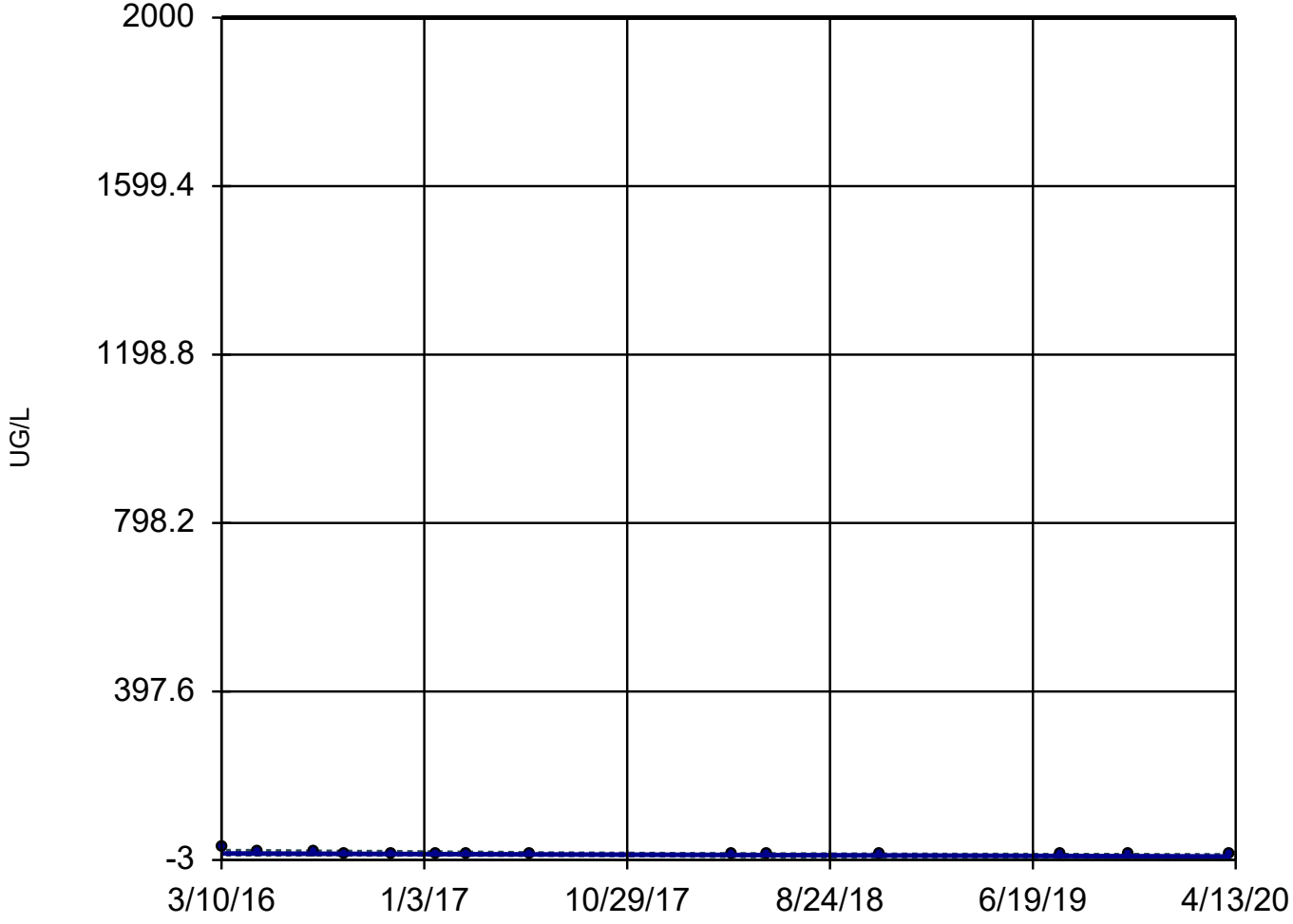
GWPS = 6.

Constituent: ANTIMONY, TOTAL Analysis Run 7/6/2020 12:57 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-2



n = 14

Slope = -1.807 units per year.

Mann-Kendall statistic = -79
critical = -44

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

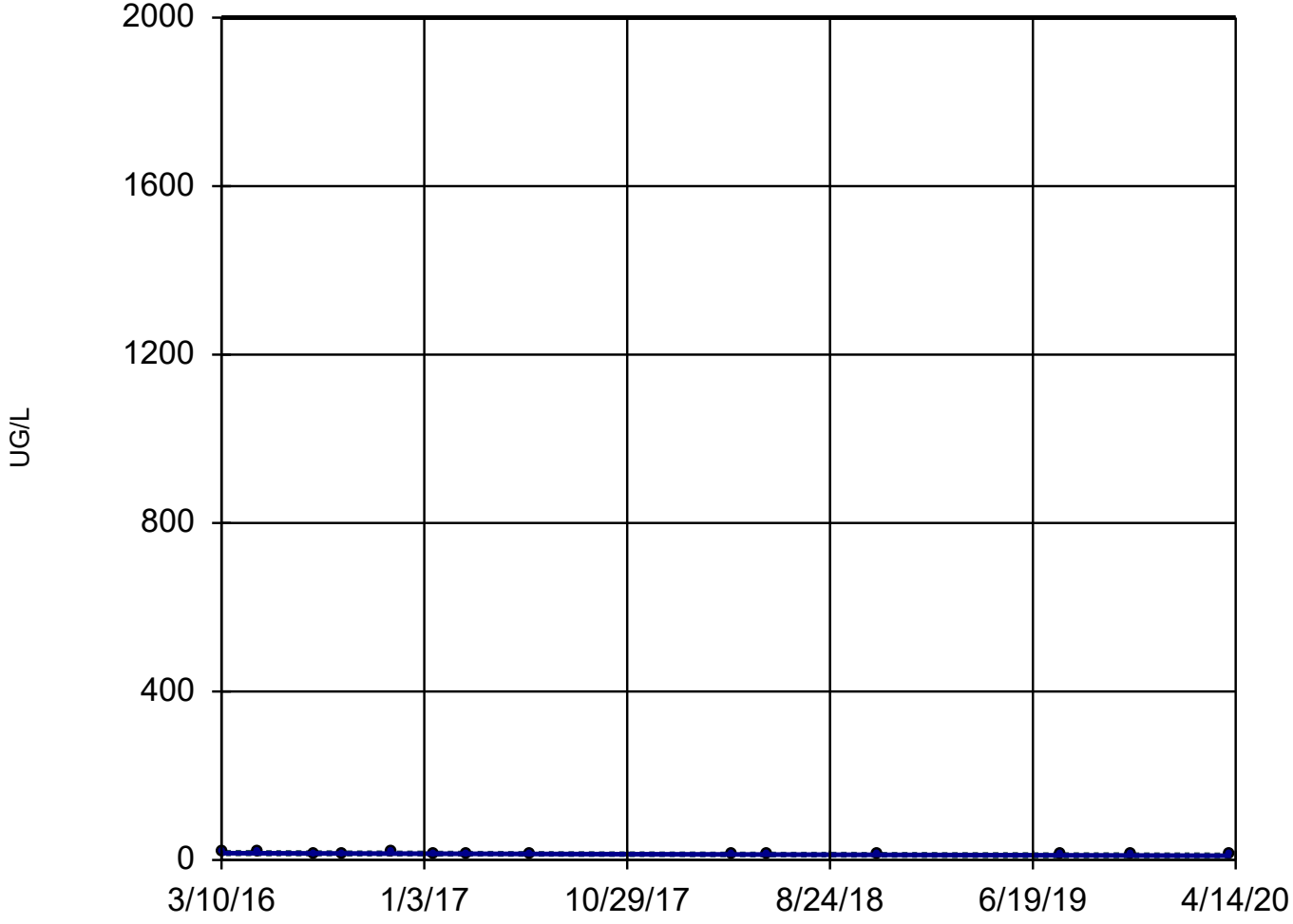
GWPS = 2000.

Constituent: BARIUM, TOTAL Analysis Run 7/6/2020 12:57 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-3



n = 14

Slope = -1.53 units per year.

Mann-Kendall statistic = -73
critical = -44

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

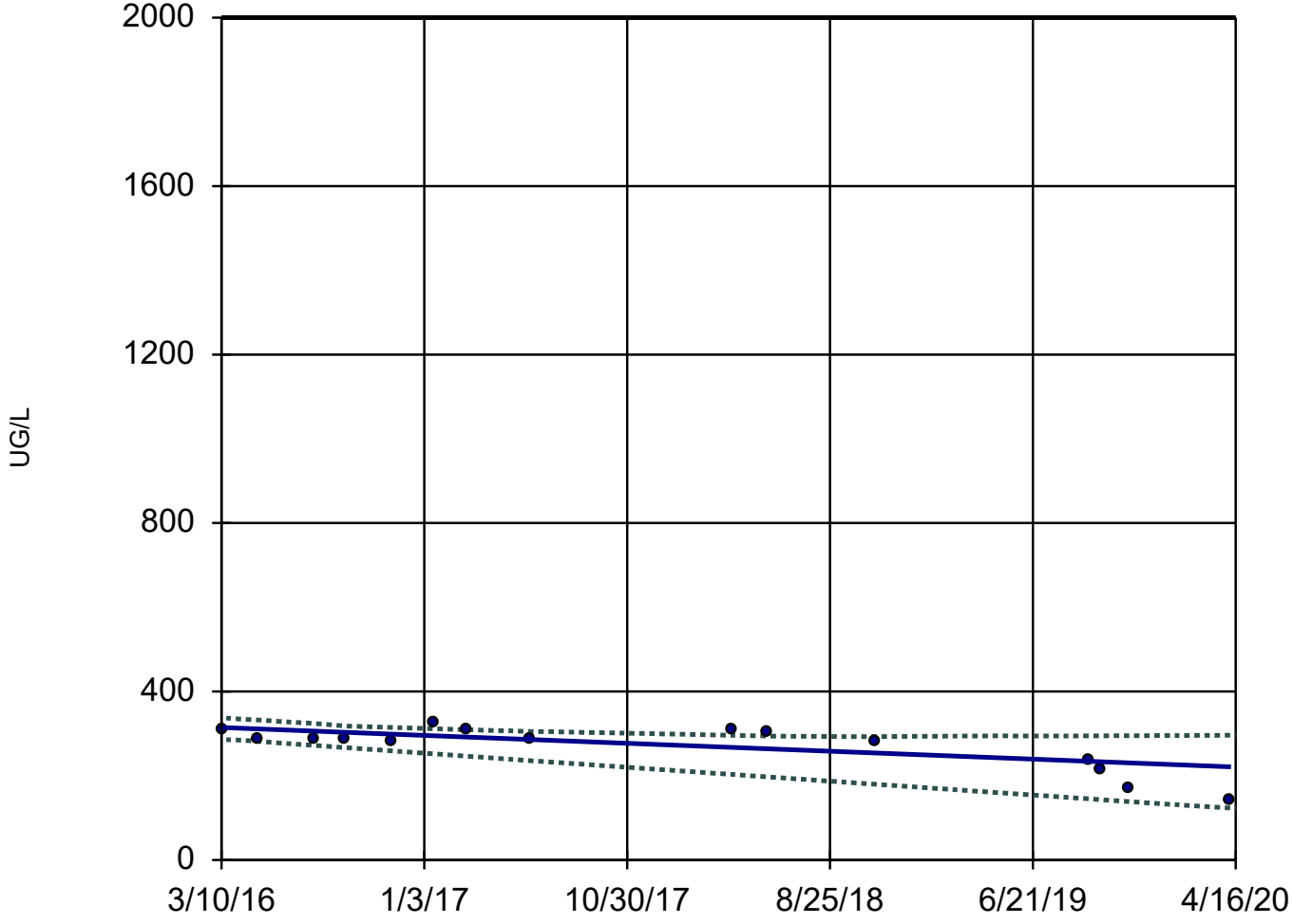
GWPS = 2000.

Constituent: BARIUM, TOTAL Analysis Run 7/6/2020 12:57 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-7



n = 15

Slope = -22.85 units per year.

Mann-Kendall statistic = -56
critical = -48

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 2000.

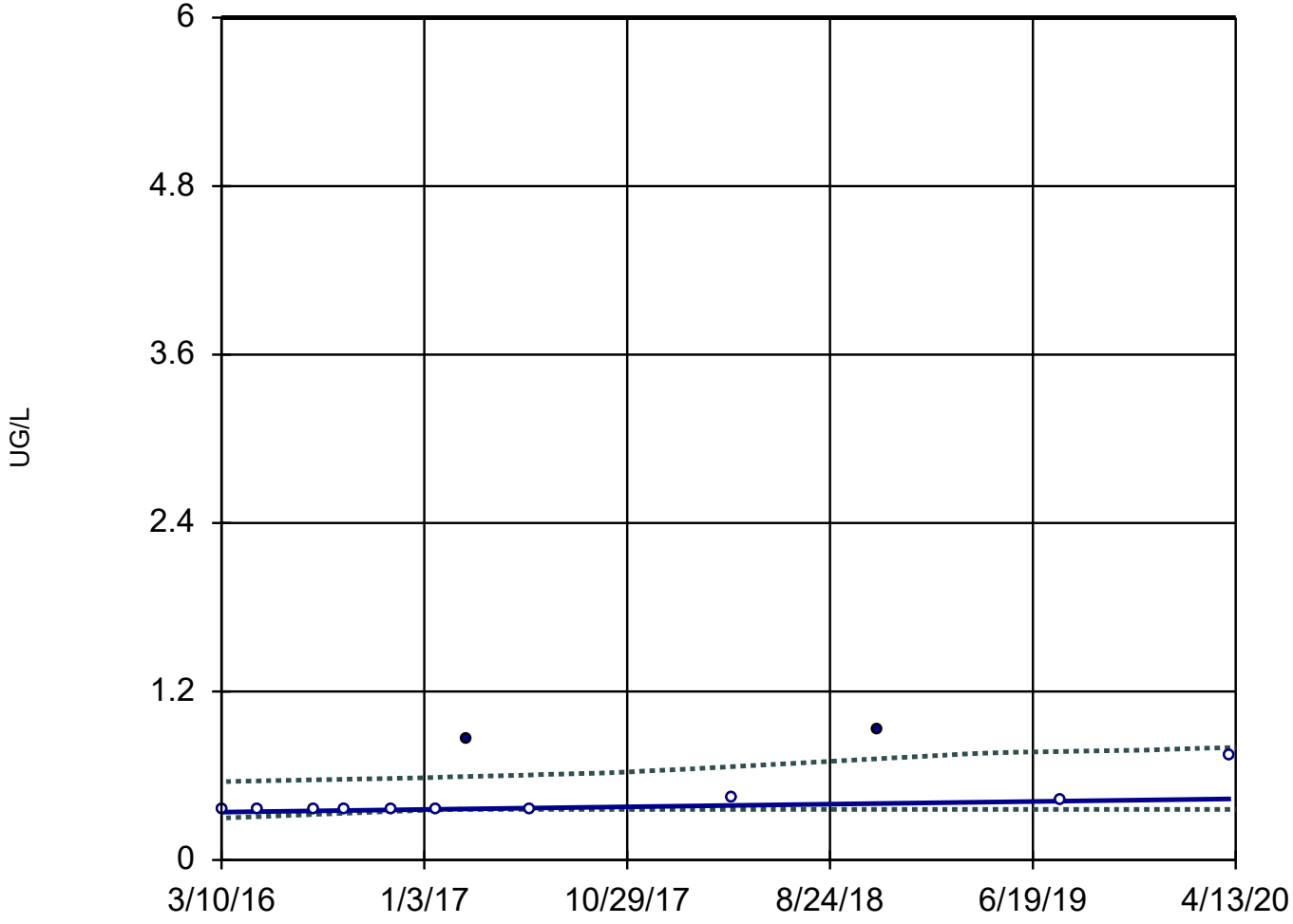
Constituent: BARIUM, TOTAL Analysis Run 7/6/2020 12:57 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-1



n = 12

Slope = 0.02298 units per year.

Mann-Kendall statistic = 37
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 6.

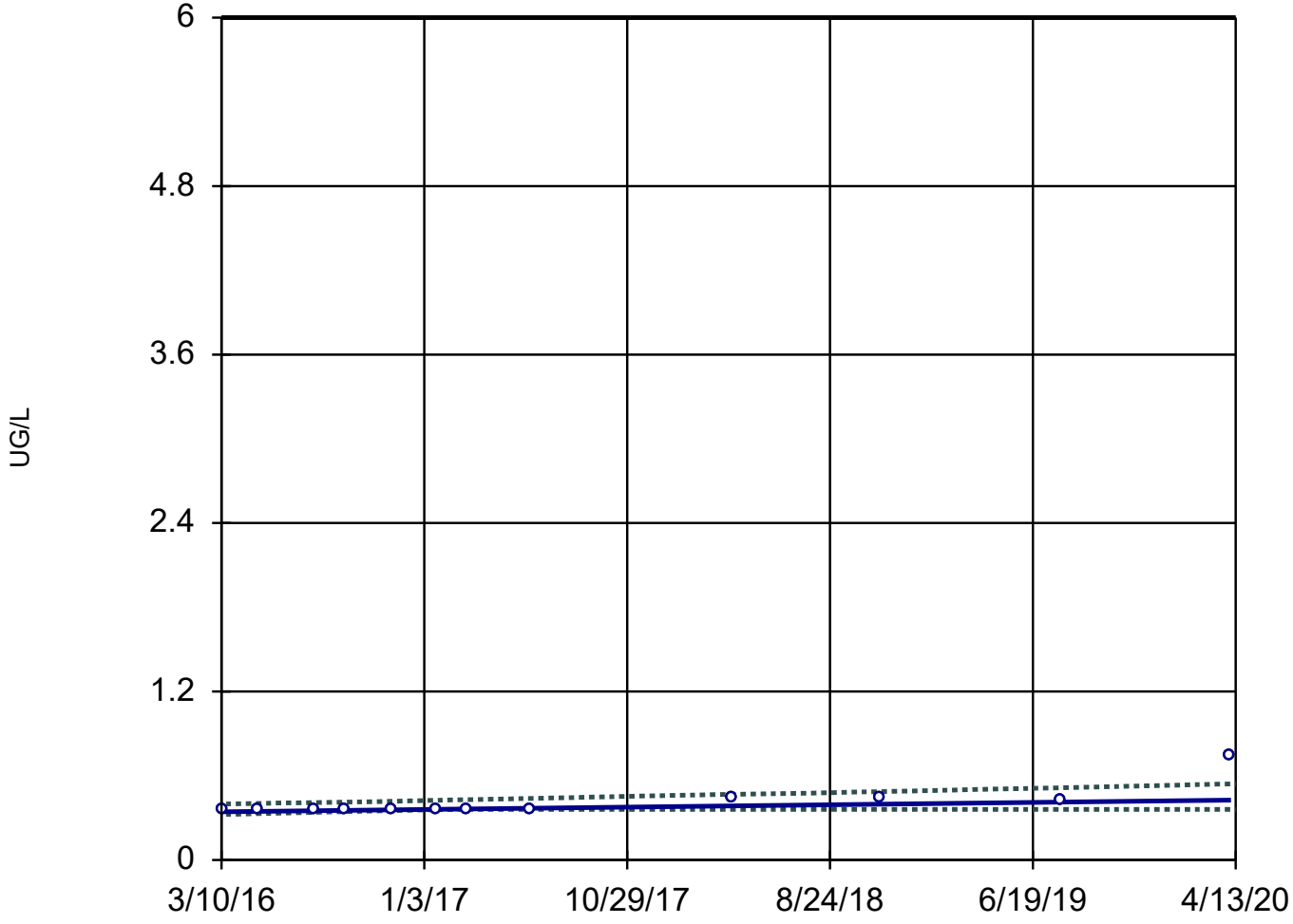
Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-2



n = 12

Slope = 0.02032 units per year.

Mann-Kendall statistic = 45
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 6.

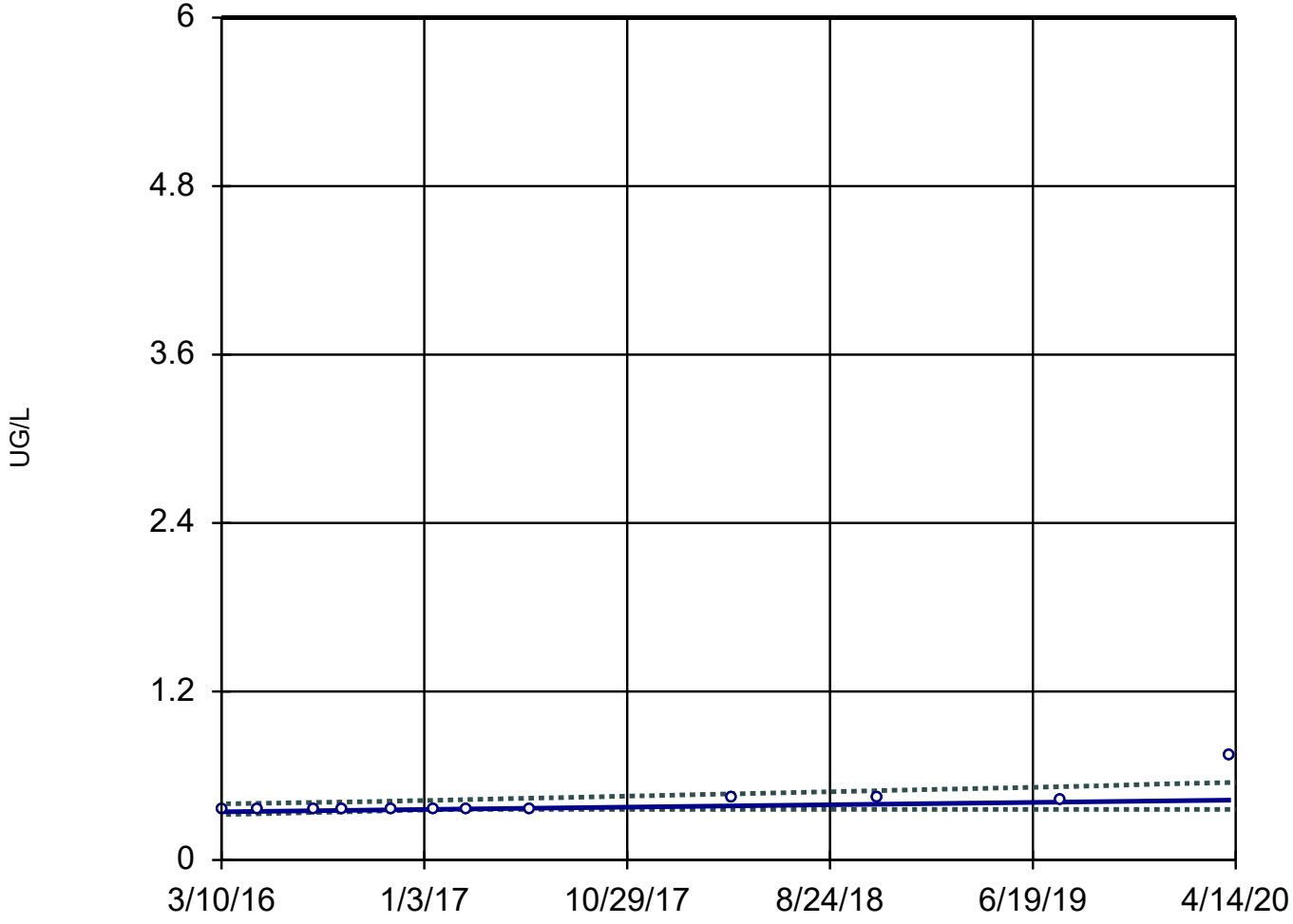
Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-3



n = 12

Slope = 0.0203 units per year.

Mann-Kendall statistic = 45
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 6.

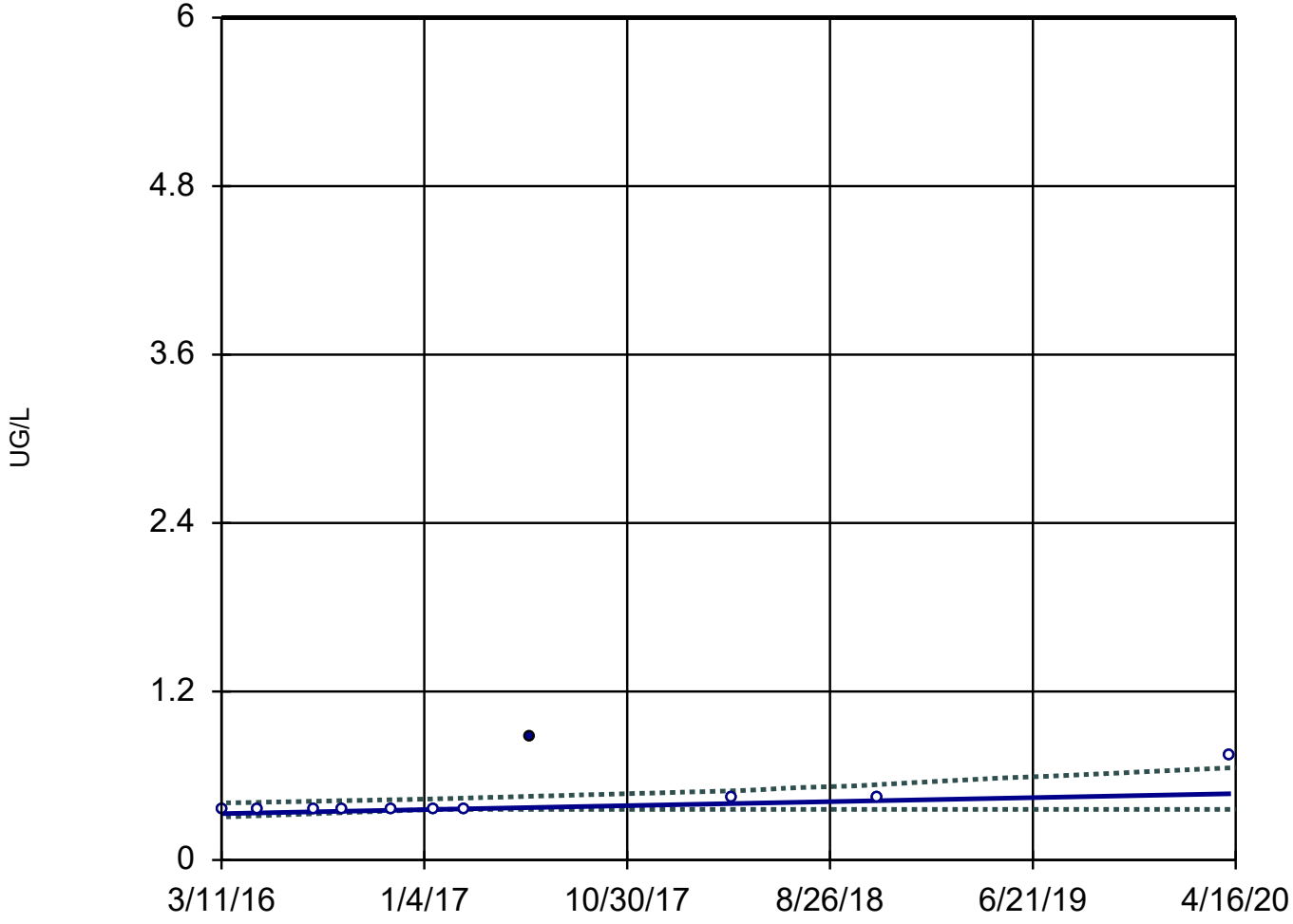
Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-6



n = 11

Slope = 0.03465 units per year.

Mann-Kendall statistic = 33
critical = 31

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 6.

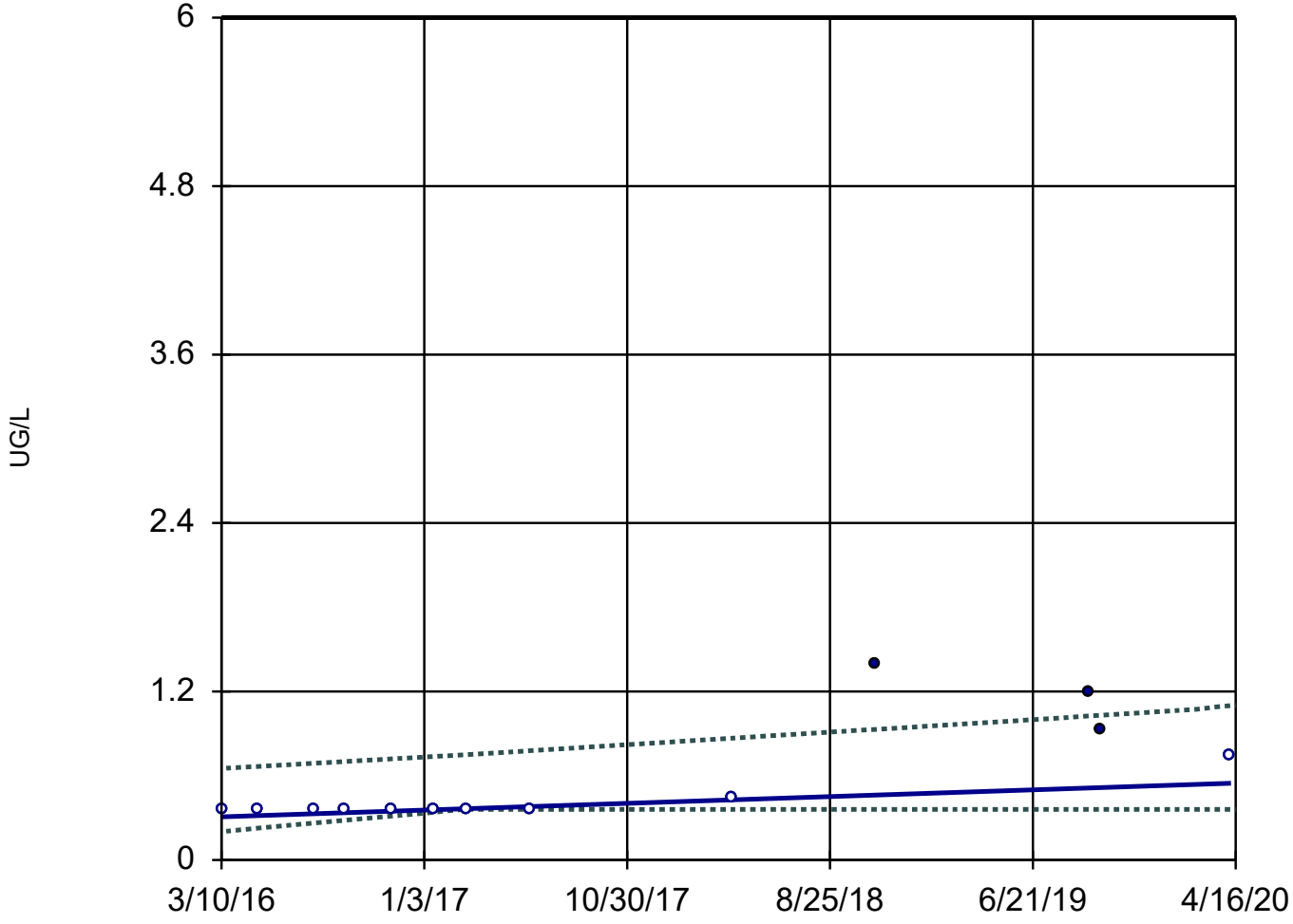
Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-7



n = 13

Slope = 0.05852 units per year.

Mann-Kendall statistic = 50
critical = 39

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

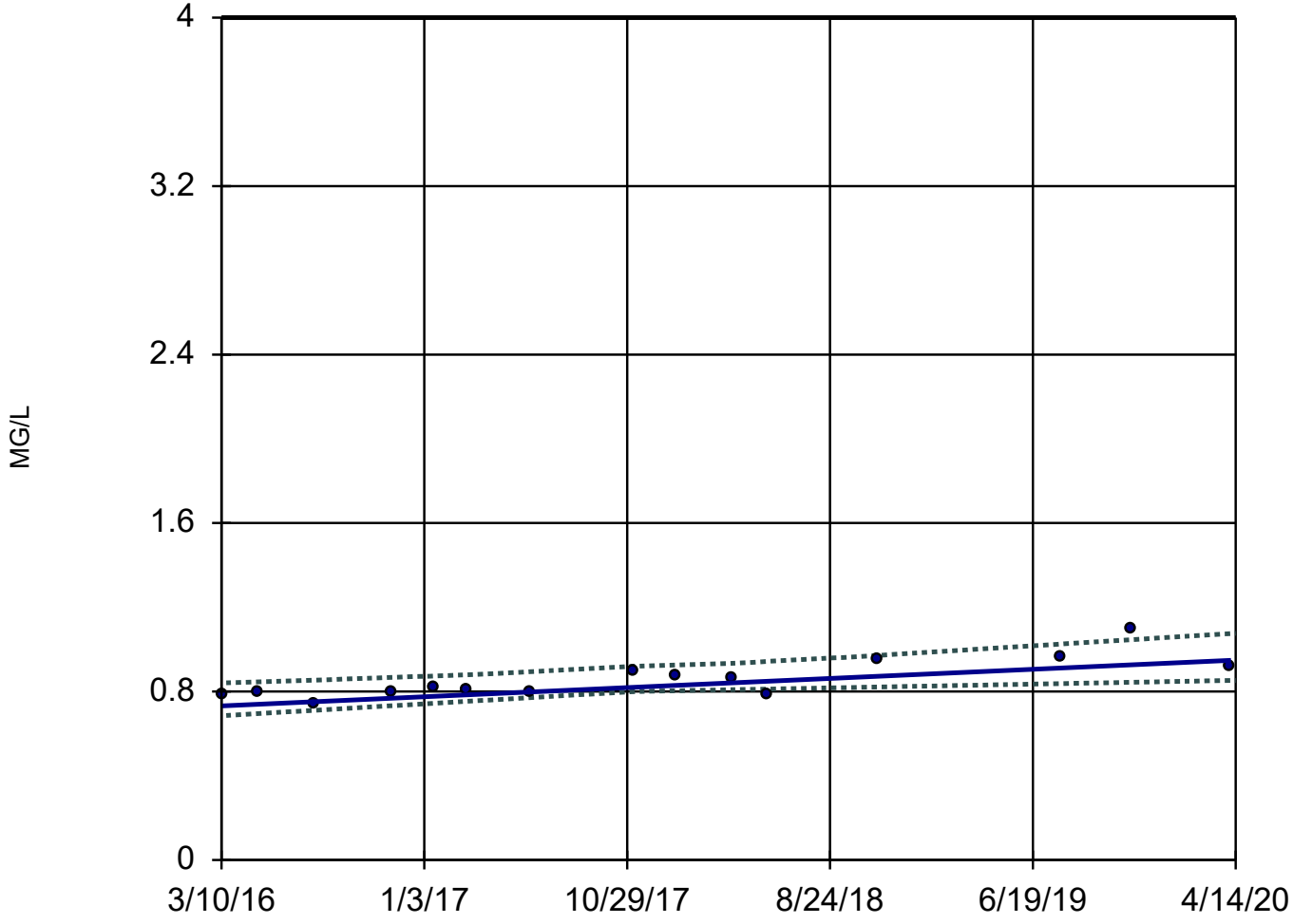
GWPS = 6.

Constituent: COBALT, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-3



n = 15

Slope = 0.05307 units per year.

Mann-Kendall statistic = 63
critical = 48

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 4.

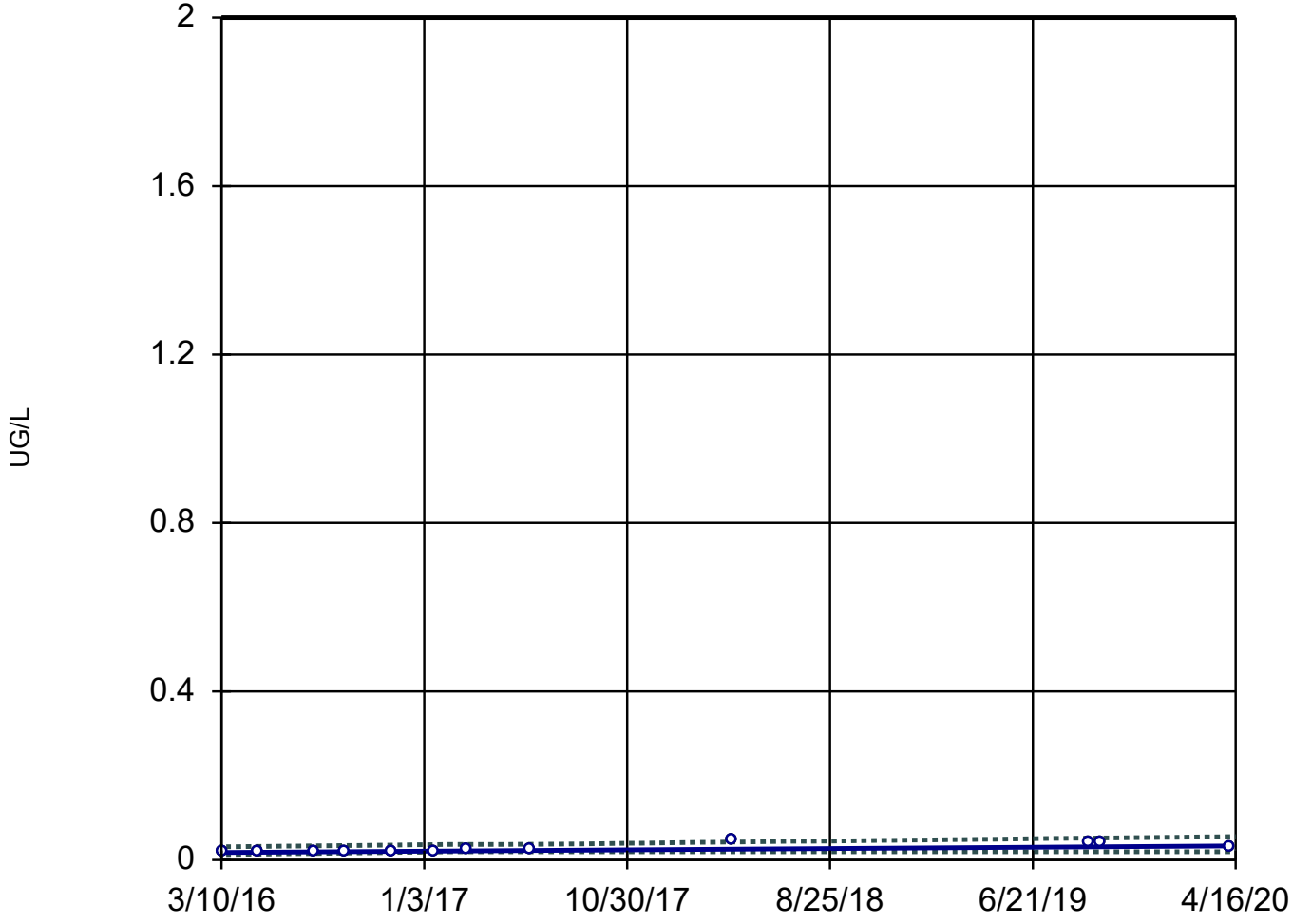
Constituent: FLUORIDE, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sanitas™ v.9.6.26 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

R-MW-7



n = 12

Slope = 0.003778 units per year.

Mann-Kendall statistic = 39
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

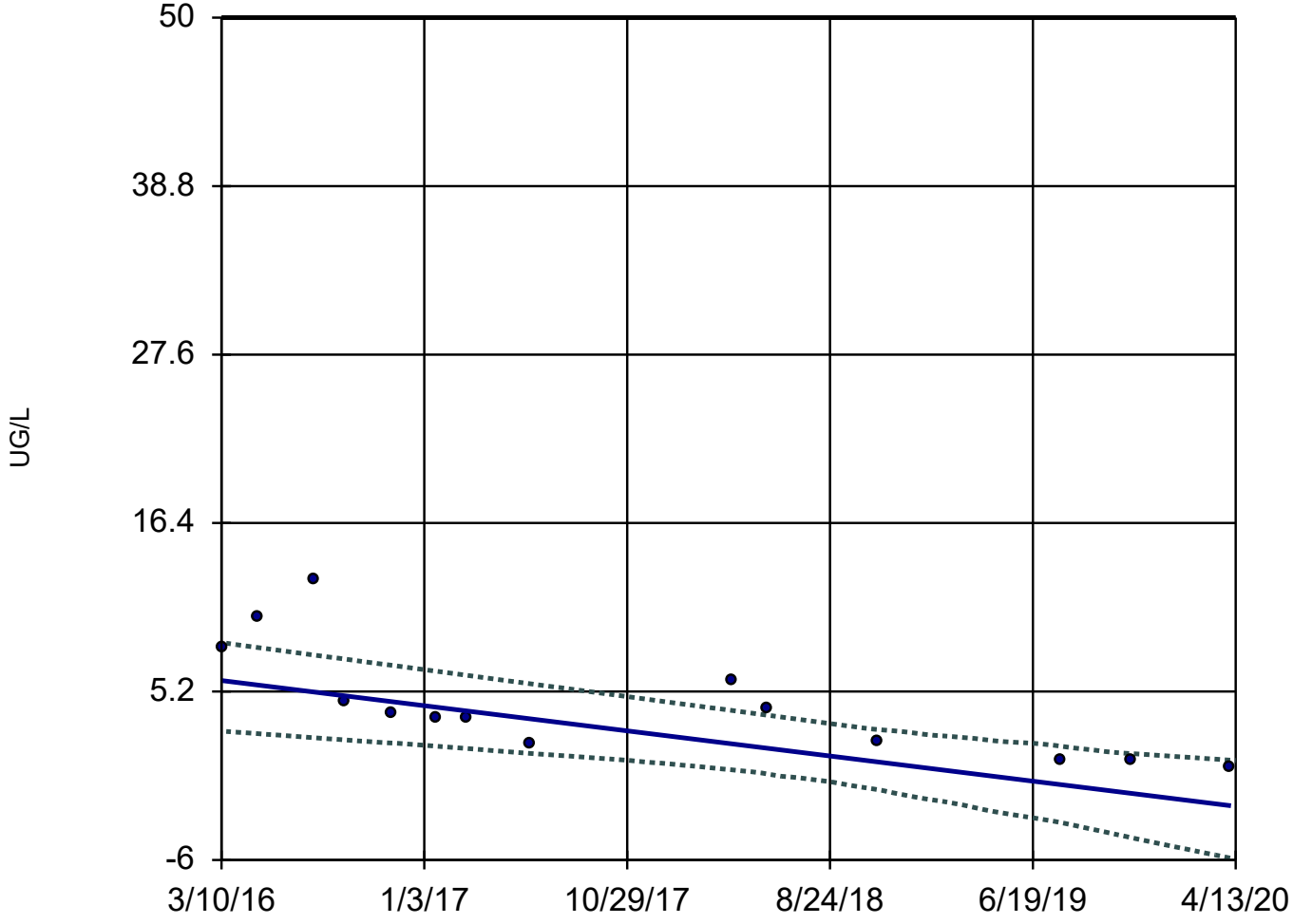
GWPS = 2.

Constituent: MERCURY, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Sen's Slope and 95% Confidence Band

R-MW-1



n = 14

Slope = -2.041 units per year.

Mann-Kendall statistic = -63
critical = -44

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

GWPS = 50.

Constituent: SELENIUM, TOTAL Analysis Run 7/6/2020 12:58 PM

Rush Island E.C. Client: Ameren Data: RIEC Data

Trend Test

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 1:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
ANTIMONY, TOTAL (UG/L)	R-MW-1	-0.05767	-13	-44	No	14	21.43	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	**R-MW-2**	**-0.5989**	**-66**	**-44**	**Yes**	**14**	**0**	**n/a**	**n/a**	**0.02**	**NP**
ANTIMONY, TOTAL (UG/L)	R-MW-3	0	2	44	No	14	28.57	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-4	0.002991	21	39	No	13	76.92	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-5	0.002991	22	39	No	13	92.31	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-6	0	1	44	No	14	57.14	n/a	n/a	0.02	NP
ANTIMONY, TOTAL (UG/L)	R-MW-7	0.003349	15	48	No	15	73.33	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-1	0.3919	13	44	No	14	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-2	-9.684	-38	-44	No	14	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-3	8.285	25	44	No	14	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-4	-0.05105	-5	-44	No	14	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-5	-0.3698	-42	-44	No	14	0	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-6	0.03872	4	39	No	13	23.08	n/a	n/a	0.02	NP
ARSENIC, TOTAL (UG/L)	R-MW-7	-13.34	-37	-44	No	14	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-1	0.8855	17	39	No	13	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	**R-MW-2**	**-1.807**	**-79**	**-44**	**Yes**	**14**	**0**	**n/a**	**n/a**	**0.02**	**NP**
BARIUM, TOTAL (UG/L)	**R-MW-3**	**-1.53**	**-73**	**-44**	**Yes**	**14**	**0**	**n/a**	**n/a**	**0.02**	**NP**
BARIUM, TOTAL (UG/L)	R-MW-4	-2.296	-4	-44	No	14	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-5	-3.496	-13	-39	No	13	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	R-MW-6	7.466	11	39	No	13	0	n/a	n/a	0.02	NP
BARIUM, TOTAL (UG/L)	**R-MW-7**	**-22.85**	**-56**	**-48**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.02**	**NP**
BERYLLIUM, TOTAL (UG/L)	R-MW-1	0	-15	-35	No	12	100	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-2	0	-15	-35	No	12	100	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-3	0	-5	-35	No	12	91.67	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-4	0	-15	-35	No	12	100	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-5	0	-15	-35	No	12	100	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-6	0	-5	-35	No	12	91.67	n/a	n/a	0.02	NP
BERYLLIUM, TOTAL (UG/L)	R-MW-7	0	-13	-35	No	12	100	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-1	0.003709	19	39	No	13	76.92	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-2	0.01264	14	39	No	13	23.08	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-3	0.1037	38	39	No	13	61.54	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-4	0.008517	31	39	No	13	69.23	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-5	0.000556	18	39	No	13	100	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-6	0.000...	18	39	No	13	100	n/a	n/a	0.02	NP
CADMIUM, TOTAL (UG/L)	R-MW-7	0.004451	36	44	No	14	71.43	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-1	-0.09283	-26	-35	No	12	50	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-2	-0.2138	-28	-35	No	12	25	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-3	-0.299	-24	-35	No	12	25	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-4	-0.1825	-28	-35	No	12	25	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-5	-0.1193	-26	-35	No	12	16.67	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-6	-0.06075	-24	-35	No	12	58.33	n/a	n/a	0.02	NP
CHROMIUM, TOTAL (UG/L)	R-MW-7	-0.07517	-20	-39	No	13	30.77	n/a	n/a	0.02	NP
COBALT, TOTAL (UG/L)	**R-MW-1**	**0.02298**	**37**	**35**	**Yes**	**12**	**83.33**	**n/a**	**n/a**	**0.02**	**NP**
COBALT, TOTAL (UG/L)	**R-MW-2**	**0.02032**	**45**	**35**	**Yes**	**12**	**100**	**n/a**	**n/a**	**0.02**	**NP**
COBALT, TOTAL (UG/L)	**R-MW-3**	**0.0203**	**45**	**35**	**Yes**	**12**	**100**	**n/a**	**n/a**	**0.02**	**NP**
COBALT, TOTAL (UG/L)	R-MW-4	0.0418	33	35	No	12	75	n/a	n/a	0.02	NP
COBALT, TOTAL (UG/L)	R-MW-5	0.009514	16	35	No	12	83.33	n/a	n/a	0.02	NP
COBALT, TOTAL (UG/L)	**R-MW-6**	**0.03465**	**33**	**31**	**Yes**	**11**	**90.91**	**n/a**	**n/a**	**0.02**	**NP**
COBALT, TOTAL (UG/L)	**R-MW-7**	**0.05852**	**50**	**39**	**Yes**	**13**	**76.92**	**n/a**	**n/a**	**0.02**	**NP**
FLUORIDE, TOTAL (MG/L)	R-MW-1	0.09494	49	53	No	16	0	n/a	n/a	0.02	NP

Trend Test

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 1:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
FLUORIDE, TOTAL (MG/L)	R-MW-2	0.07179	28	53	No	16	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	**R-MW-3**	**0.05307**	**63**	**48**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.02**	**NP**
FLUORIDE, TOTAL (MG/L)	R-MW-4	0	2	53	No	16	0	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-5	0	3	48	No	15	6.667	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-6	0.0113	23	53	No	16	6.25	n/a	n/a	0.02	NP
FLUORIDE, TOTAL (MG/L)	R-MW-7	-0.00...	-14	-63	No	18	0	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-1	0	15	39	No	13	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-2	-0.6802	-9	-39	No	13	7.692	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-3	0.2028	3	39	No	13	15.38	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-4	0.1051	14	35	No	12	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-5	0.1101	16	31	No	11	100	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-6	0.1044	10	35	No	12	91.67	n/a	n/a	0.02	NP
LEAD, TOTAL (UG/L)	R-MW-7	0.1312	23	39	No	13	100	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-1	0	-8	-44	No	14	100	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-2	0	12	44	No	14	85.71	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-3	0	11	44	No	14	92.86	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-4	-0.8464	-15	-44	No	14	0	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-5	0.3836	16	44	No	14	42.86	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-6	0.1674	20	44	No	14	64.29	n/a	n/a	0.02	NP
LITHIUM, TOTAL (UG/L)	R-MW-7	0.9399	13	48	No	15	0	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-1	0.001943	16	31	No	11	90.91	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-2	0.001943	16	31	No	11	90.91	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-3	0.001941	16	31	No	11	90.91	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-4	0.00194	16	31	No	11	90.91	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-5	0.00194	16	31	No	11	90.91	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	R-MW-6	0.002114	19	31	No	11	100	n/a	n/a	0.02	NP
MERCURY, TOTAL (UG/L)	**R-MW-7**	**0.003778**	**39**	**35**	**Yes**	**12**	**100**	**n/a**	**n/a**	**0.02**	**NP**
MOLYBDENUM, TOTAL (UG/L)	R-MW-1	7.624	21	44	No	14	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-2	0.908	3	44	No	14	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-3	-10.24	-1	-44	No	14	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-4	0.3487	5	44	No	14	0	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-5	0.08366	14	44	No	14	71.43	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-6	0.3398	21	44	No	14	35.71	n/a	n/a	0.02	NP
MOLYBDENUM, TOTAL (UG/L)	R-MW-7	-12.73	-38	-48	No	15	0	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-1	0.005353	2	44	No	14	100	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-2	0.1063	29	44	No	14	92.86	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-3	0.03131	19	44	No	14	92.86	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-4	0.03717	19	44	No	14	78.57	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-5	0.0486	25	44	No	14	78.57	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-6	0.2272	21	44	No	14	71.43	n/a	n/a	0.02	NP
RADIUM [226 + 228] (PCI/L)	R-MW-7	0.07176	34	39	No	13	92.31	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	**R-MW-1**	**-2.041**	**-63**	**-44**	**Yes**	**14**	**0**	**n/a**	**n/a**	**0.02**	**NP**
SELENIUM, TOTAL (UG/L)	R-MW-2	-0.1343	-24	-44	No	14	0	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-3	-0.01563	-12	-39	No	13	0	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-4	0.0109	20	44	No	14	50	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-5	-0.00...	-38	-44	No	14	100	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-6	-0.02325	-16	-44	No	14	21.43	n/a	n/a	0.02	NP
SELENIUM, TOTAL (UG/L)	R-MW-7	0	11	48	No	15	73.33	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-1	-0.0596	-34	-35	No	12	91.67	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-2	-0.05323	-30	-39	No	13	100	n/a	n/a	0.02	NP

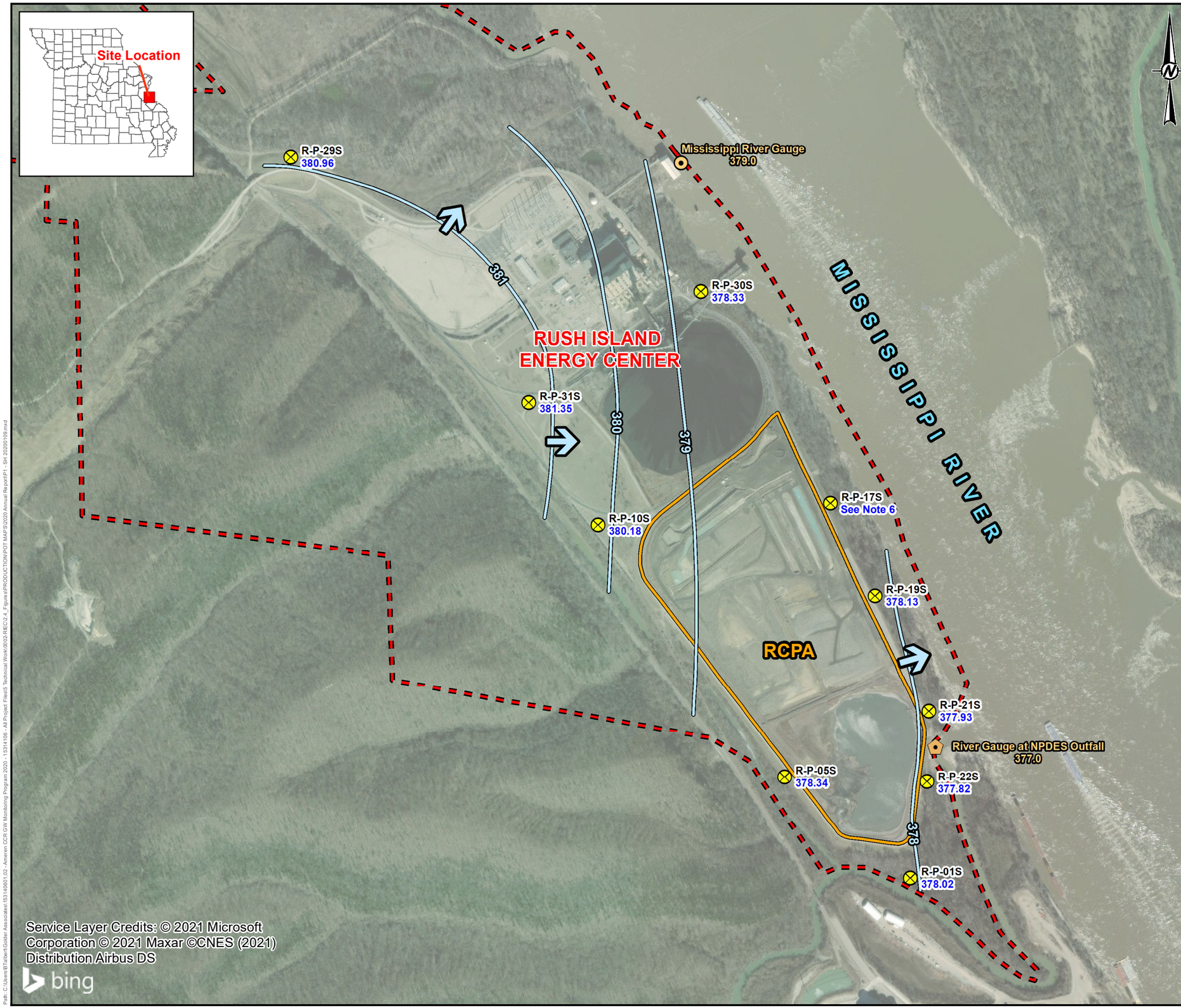
Trend Test

Rush Island E.C. Client: Ameren Data: RIEC Data Printed 7/6/2020, 1:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
THALLIUM, TOTAL (UG/L)	R-MW-3	-0.05584	-28	-35	No	12	100	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-4	-0.0558	-28	-35	No	12	100	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-5	-0.0558	-28	-35	No	12	100	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-6	-0.05953	-34	-35	No	12	91.67	n/a	n/a	0.02	NP
THALLIUM, TOTAL (UG/L)	R-MW-7	-0.0556	-38	-39	No	13	92.31	n/a	n/a	0.02	NP

APPENDIX D

2020 Potentiometric Surface Maps



LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- Mississippi River Gauge at NPDES Outfall
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) NPDES OUTFALL RIVER GAUGE OBTAINED ONSITE BY GOLDER.
6.) R-P-17S WAS NOT USED FOR CONTOUR MAPPING DUE TO MEASUREMENT ERROR.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - JANUARY 9, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-05
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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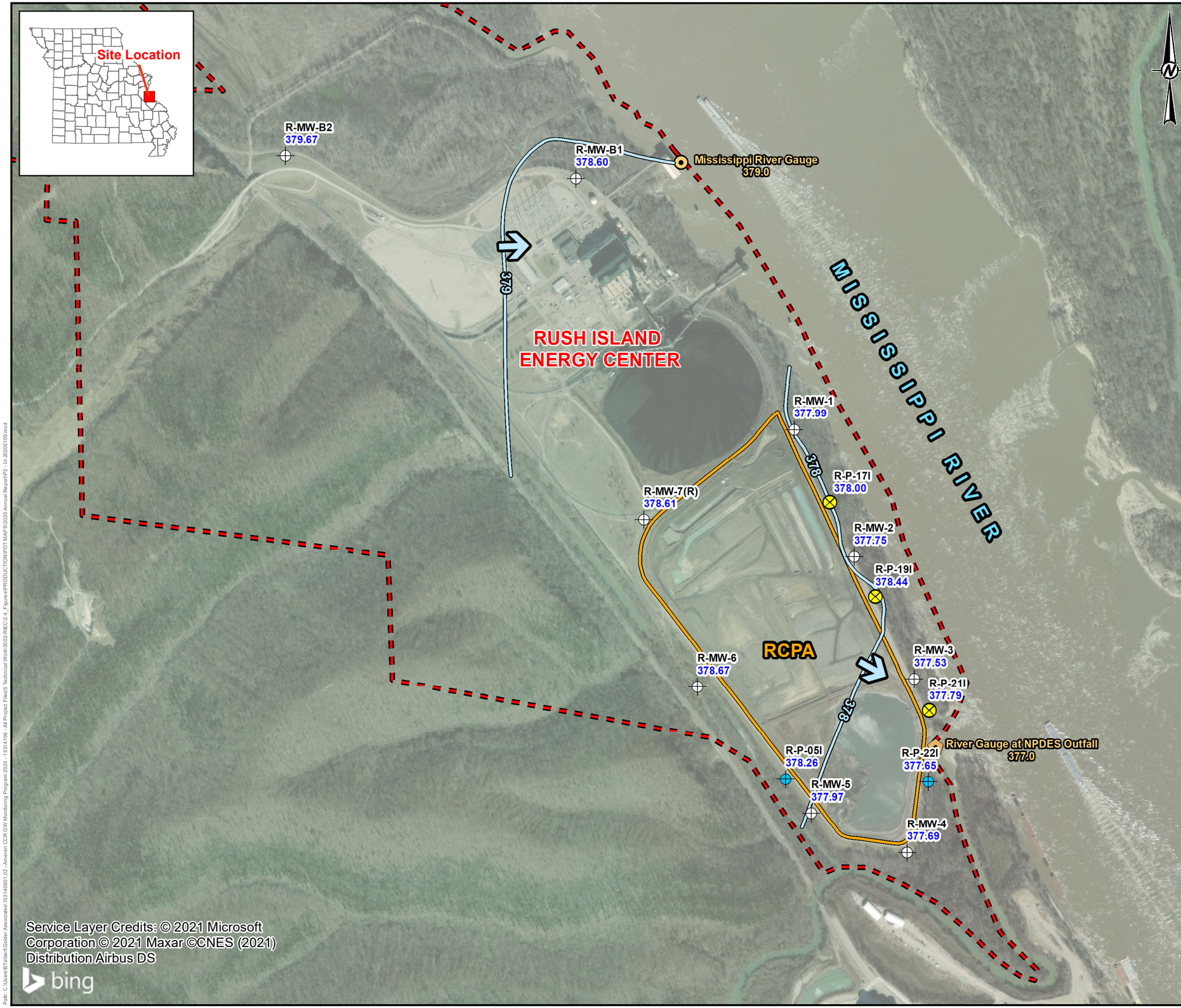

LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

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CCR Rule Monitoring Wells

Corrective Action Monitoring Wells

Monitoring Well Used for Water Level Elevation Measurements Only

Groundwater Flow Direction

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0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - JANUARY 9, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-05
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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1 in
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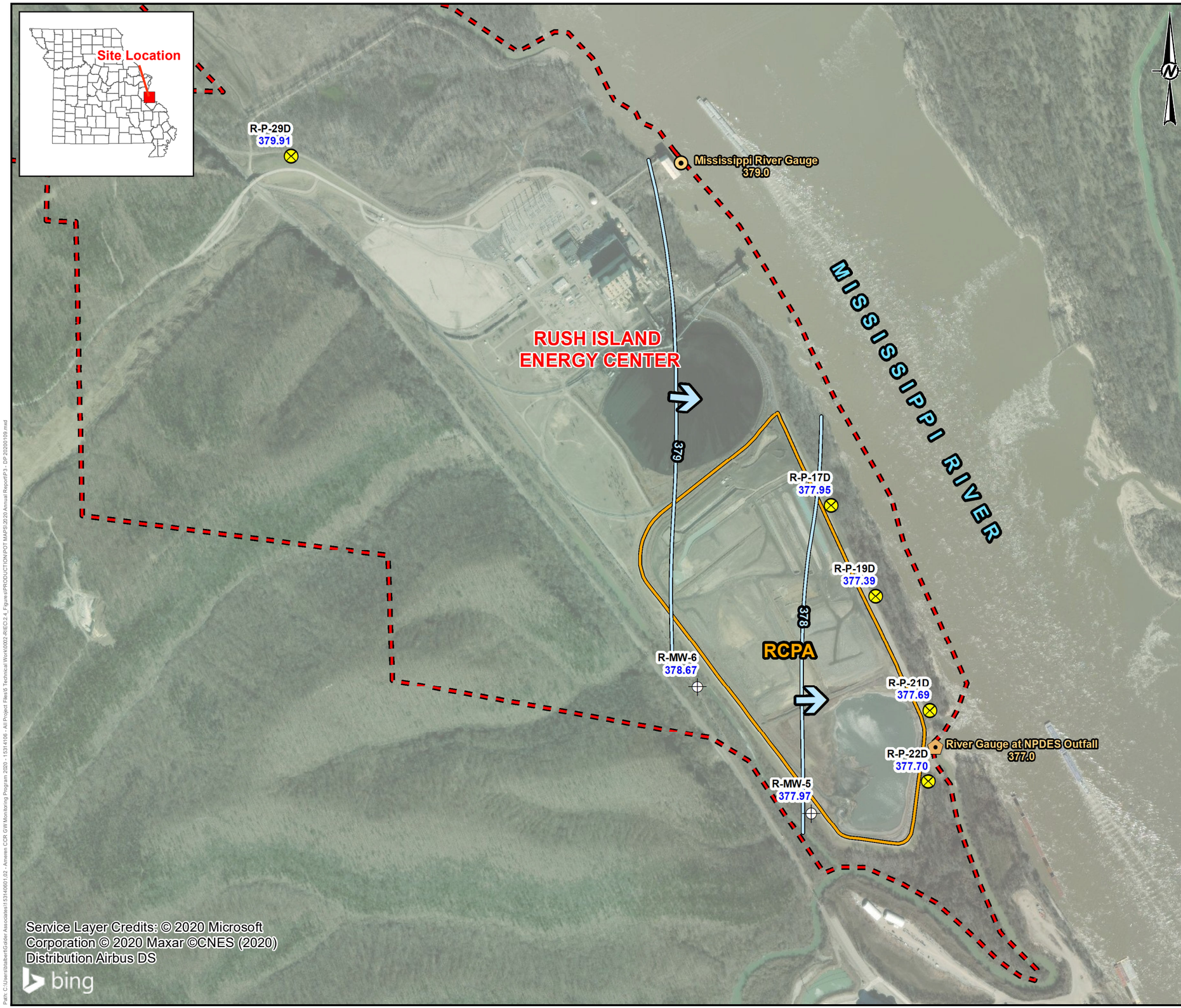

LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - JANUARY 9, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-05
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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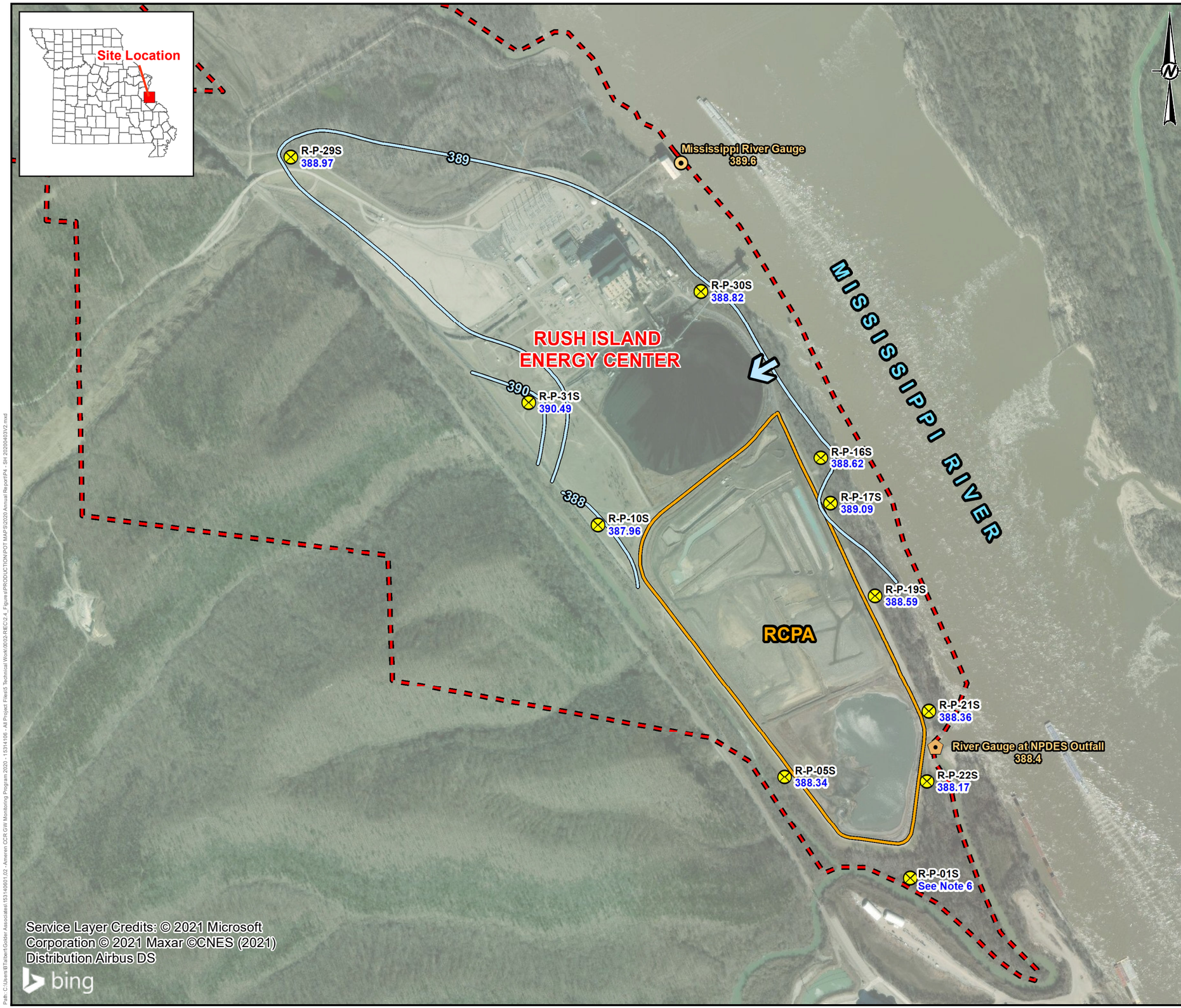

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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6.) R-P-01S WAS INACCESSIBLE DUE TO HIGH WATER.

REFERENCES

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - APRIL 3, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-05-13
PREPARED	EMS/BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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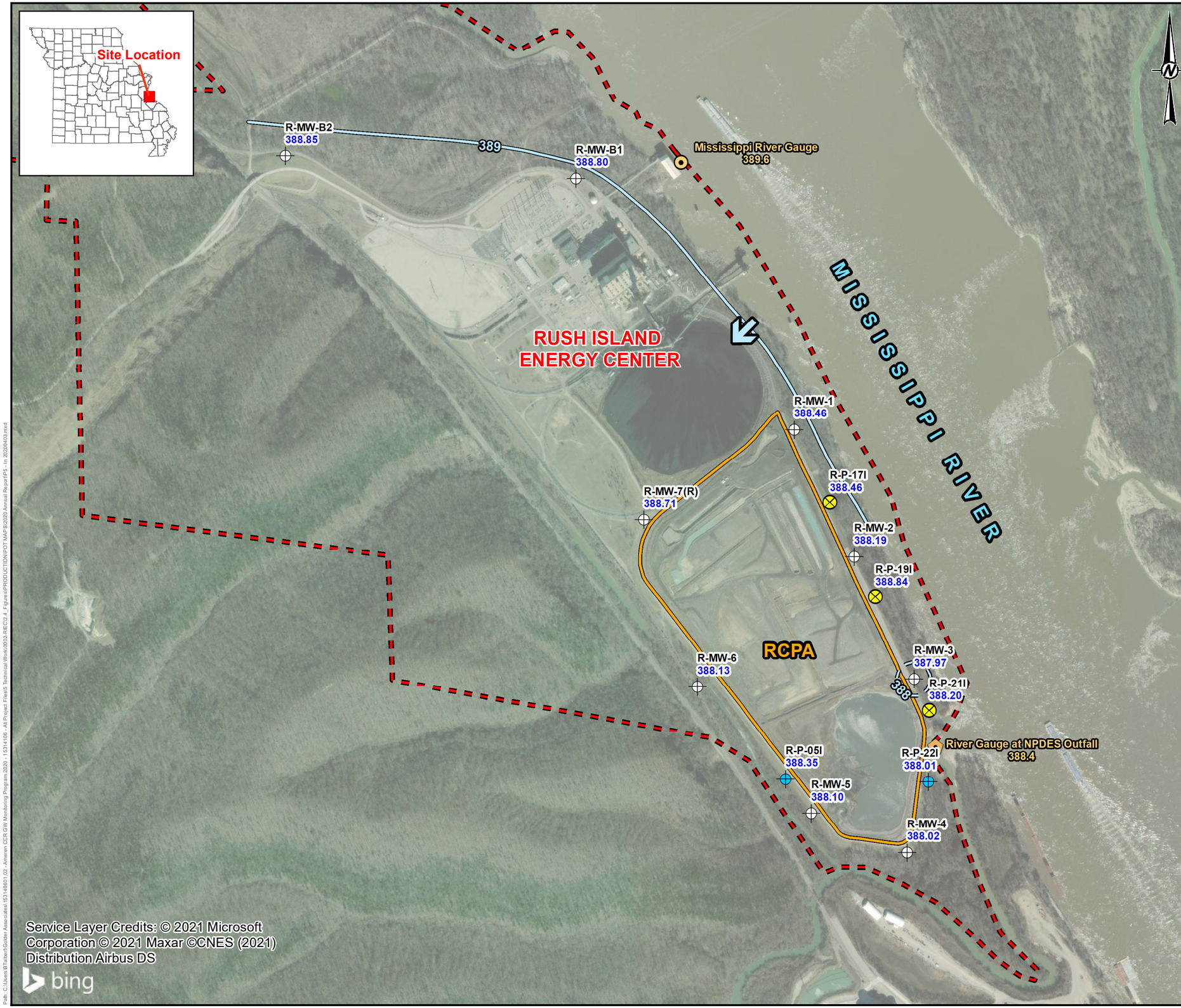

LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

Mississippi River Gauge

Mississippi River Gauge at NPDES Outfall

CCR Rule Monitoring Wells

Corrective Action Monitoring Wells

Monitoring Well Used for Water Level Elevation Measurements Only

Groundwater Flow Direction

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REFERENCES

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - APRIL 3, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-05-12
PREPARED	EMS/BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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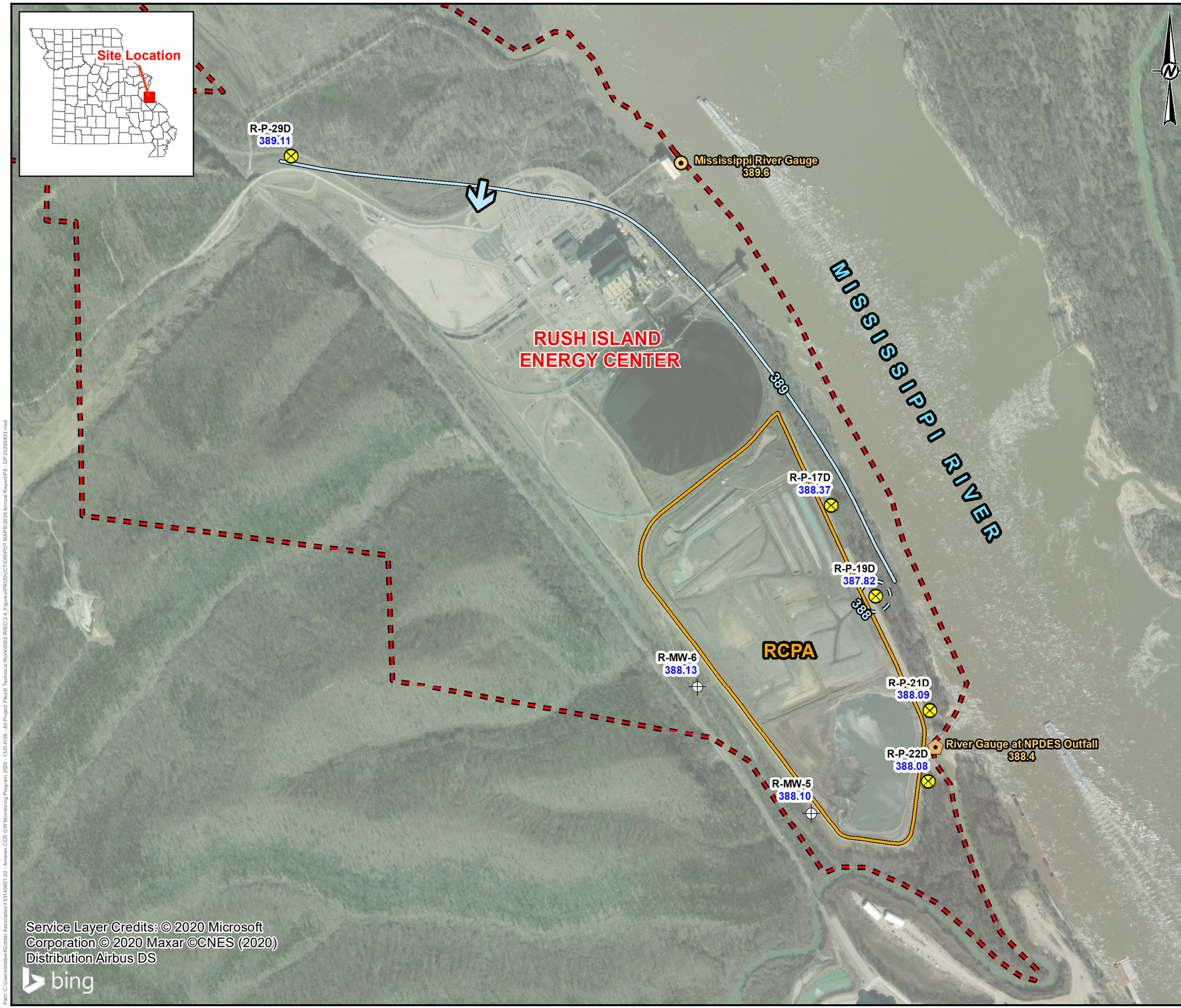

LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

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Mississippi River Gauge at NPDES Outfall

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - APRIL 3, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-05-13
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

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LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

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

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REFERENCES

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - MAY 19, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-06-03
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D7

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

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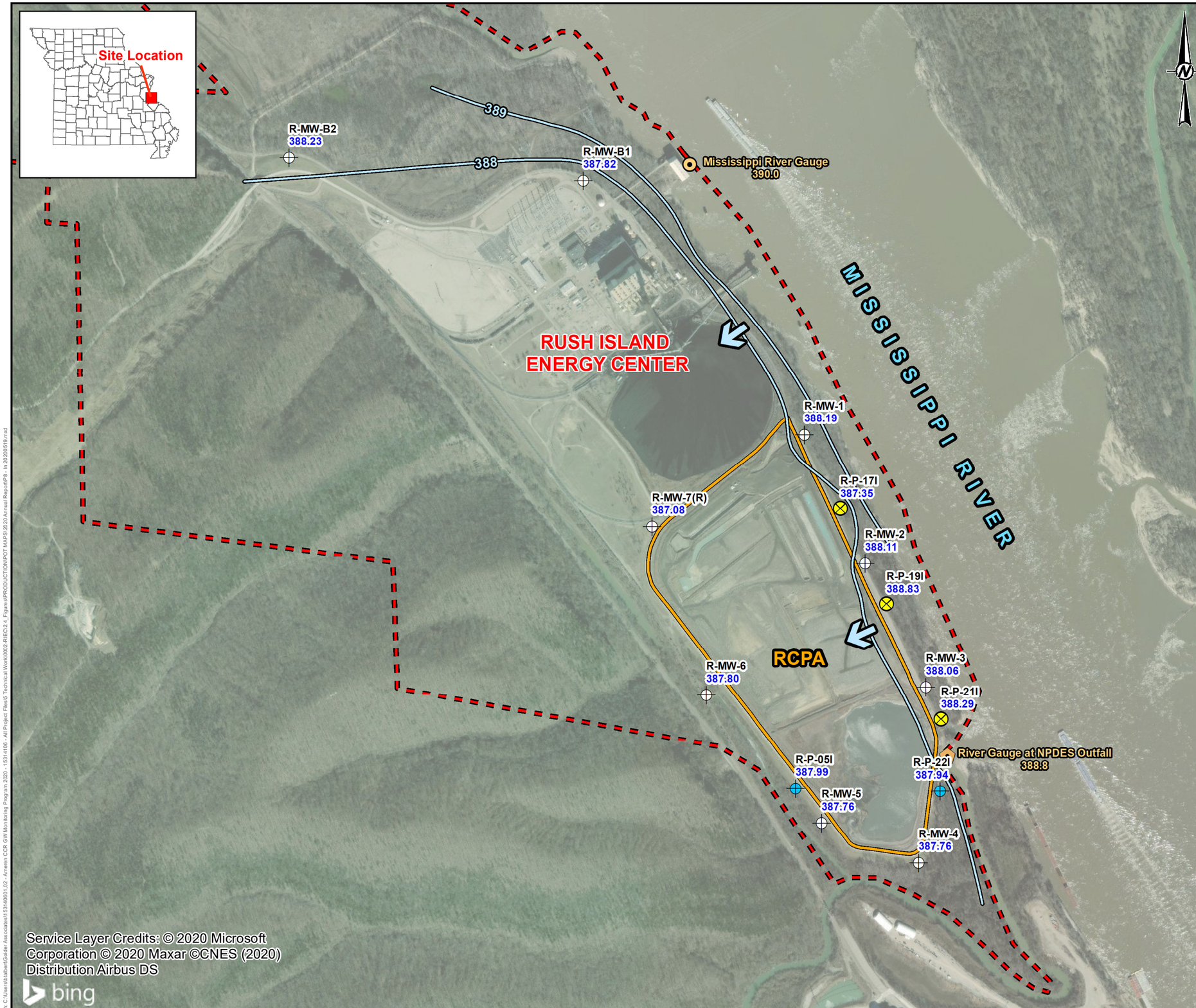

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - MAY 19, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-06-03
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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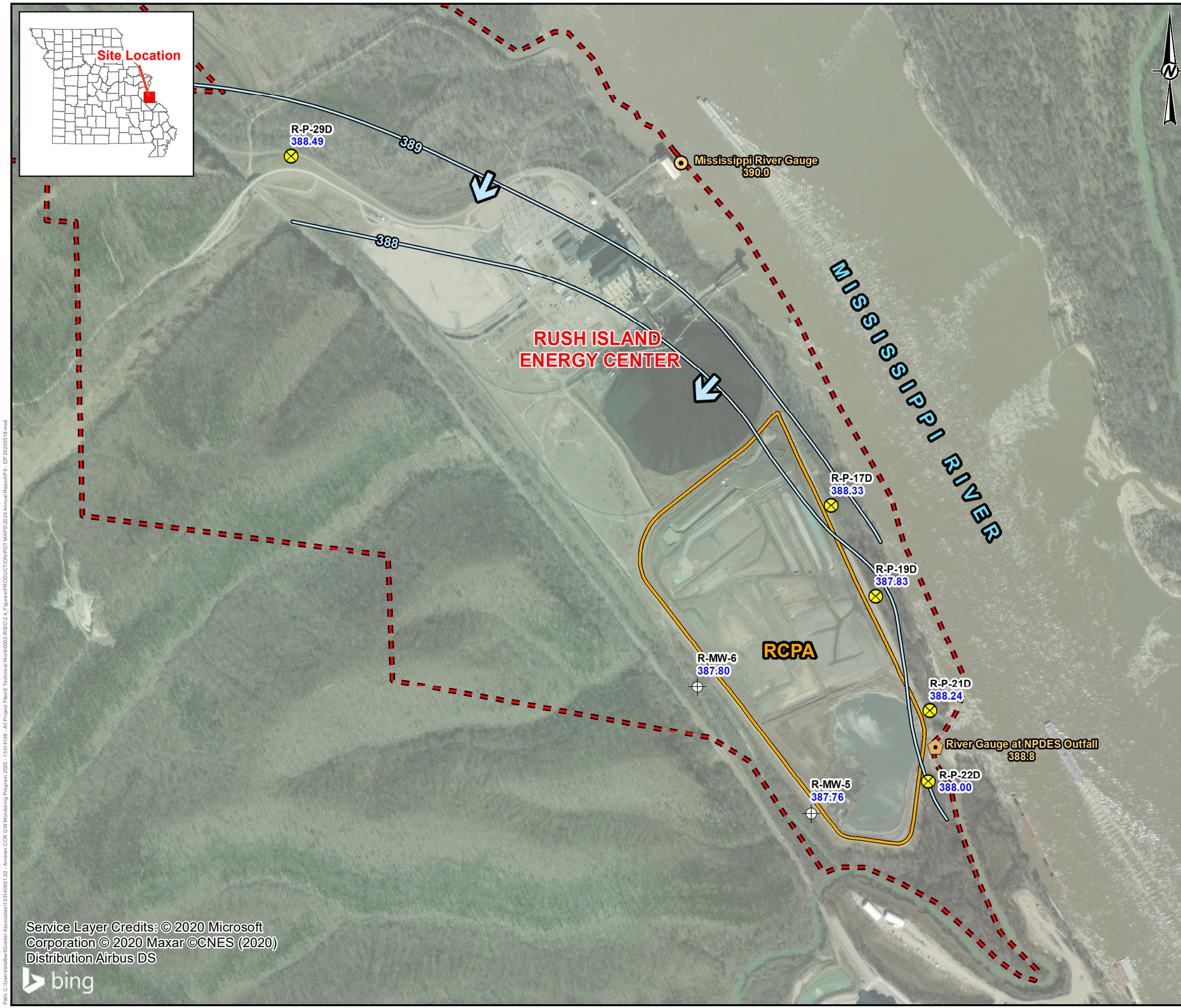

LEGEND

Approximate Rush Island Energy Center Property Boundary

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0 500 1,000 2,000 Feet

CLIENT
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PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - MAY 19, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-06-03
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
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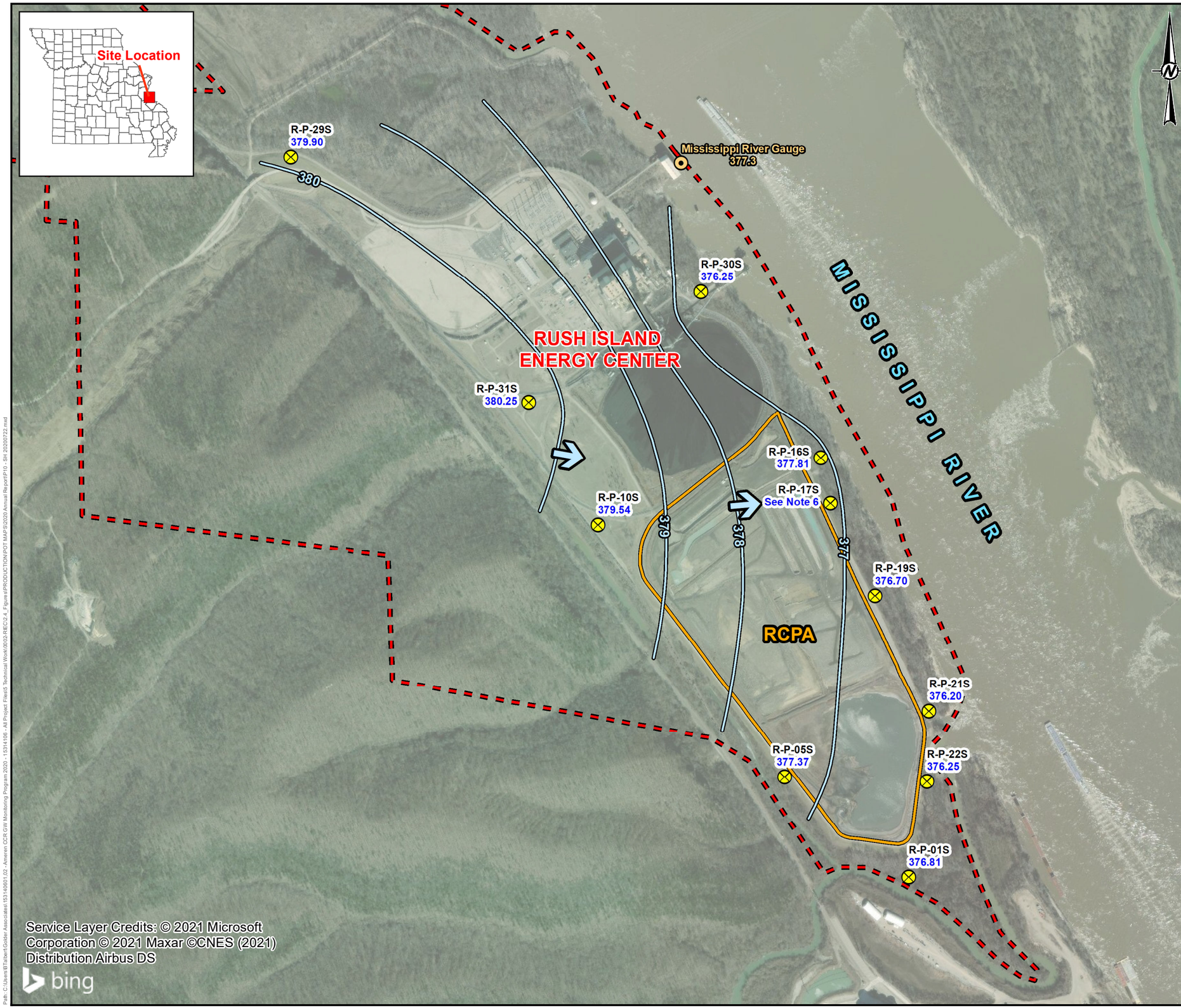

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

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4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) NPDES OUTFALL RIVER GAUGE WAS REMOVED DUE TO RCPA CONSTRUCTION BEFORE THE 7/22/2020 EVENT.
6.) R-P-17S WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERROR.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - JULY 22, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-08-10
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D10

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

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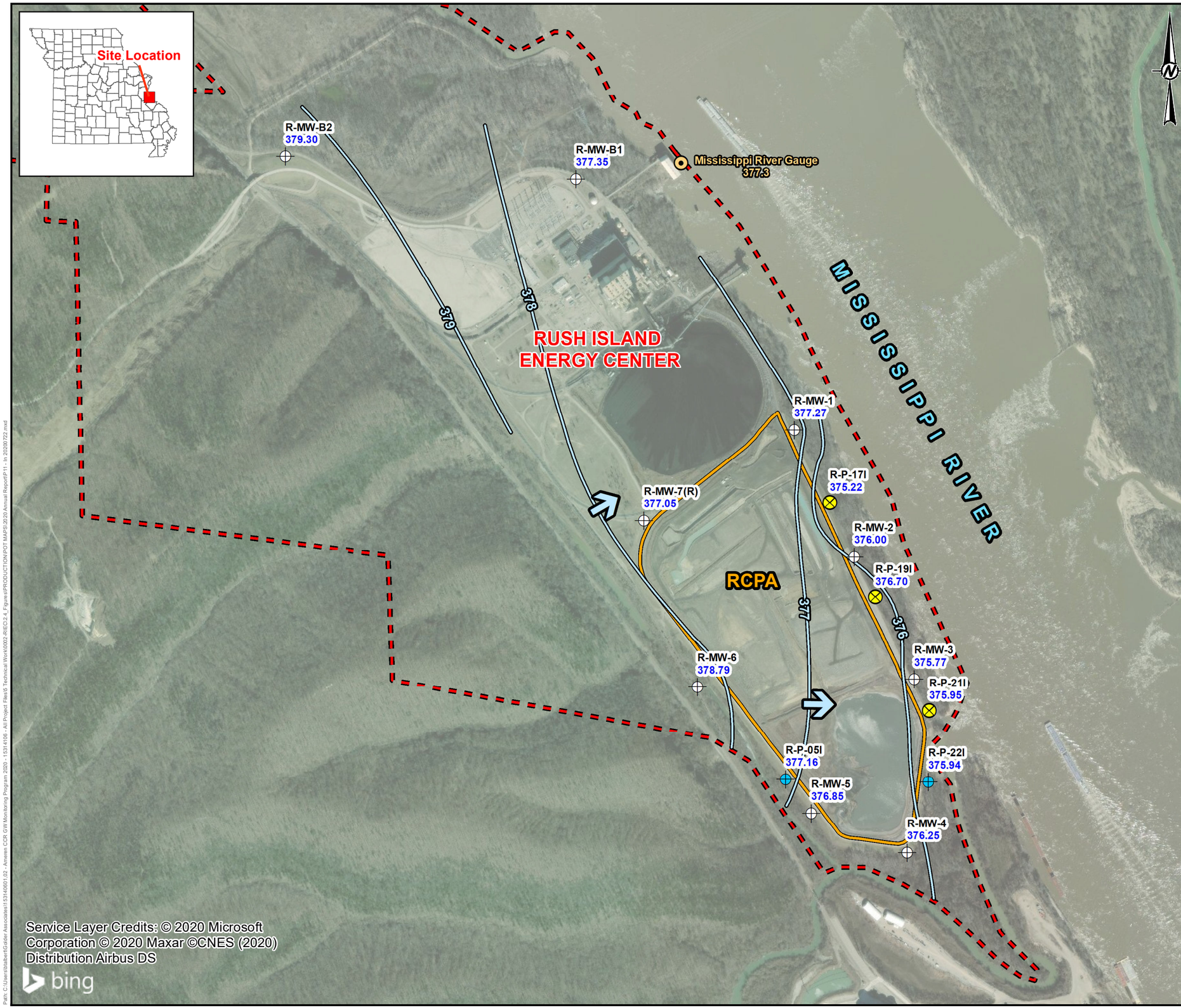

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- CCR Rule Monitoring Wells
- Corrective Action Monitoring Wells
- Monitoring Well Used for Water Level Elevation Measurements Only
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) NPDES OUTFALL RIVER GAUGE WAS REMOVED DUE TO RCPA CONSTRUCTION BEFORE THE 07/22/2020 EVENT.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - JULY 22, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-08-11
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D11

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1 in
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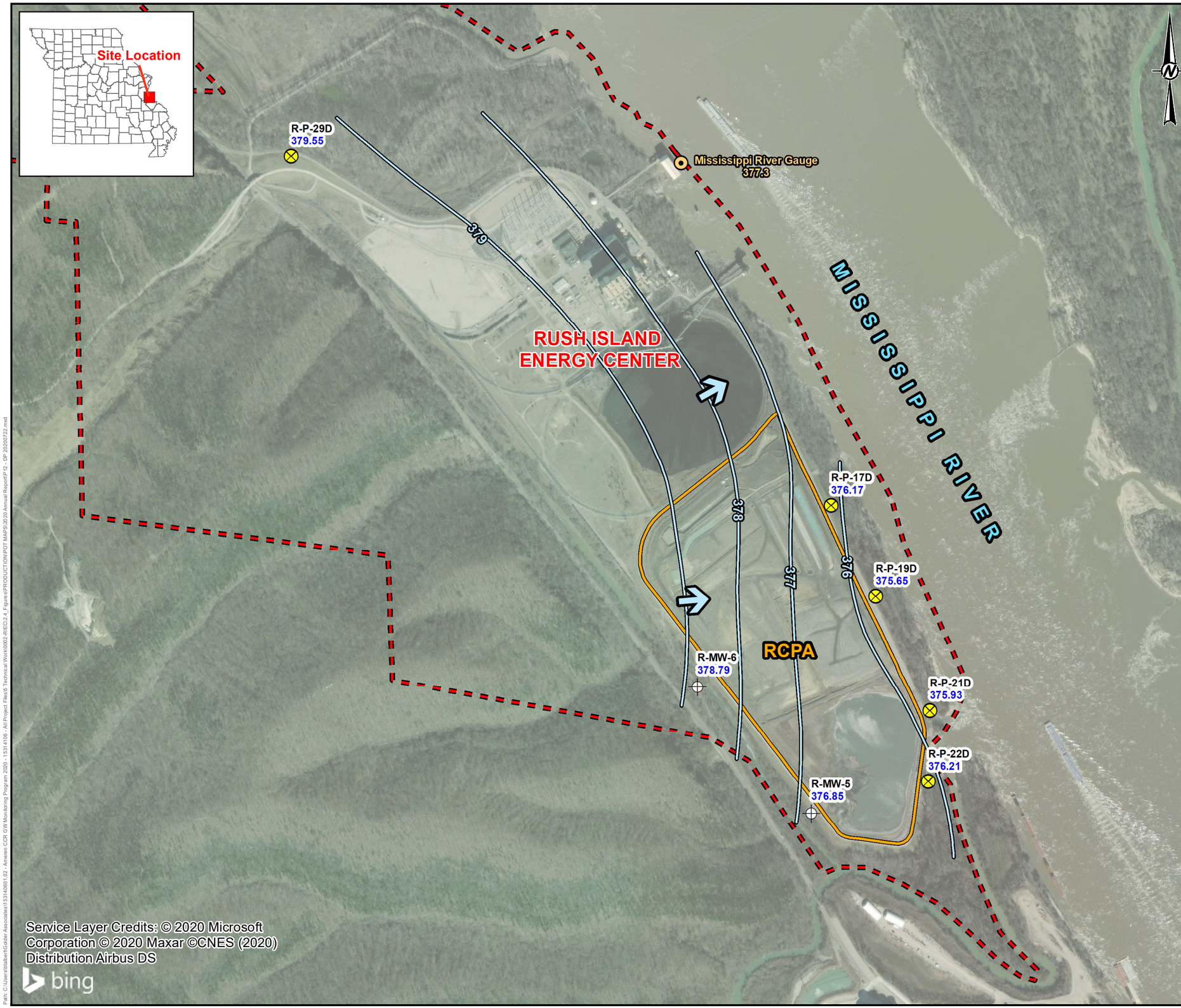

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- CCR Rule Monitoring Wells
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
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4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) NPDES OUTFALL RIVER GAUGE WAS REMOVED DUE TO RCPA CONSTRUCTION BEFORE THE 07/22/2020 EVENT.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - JULY 22, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-08-11
PREPARED	BTT
DESIGN	JSI
REVIEW	KAB
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D12

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

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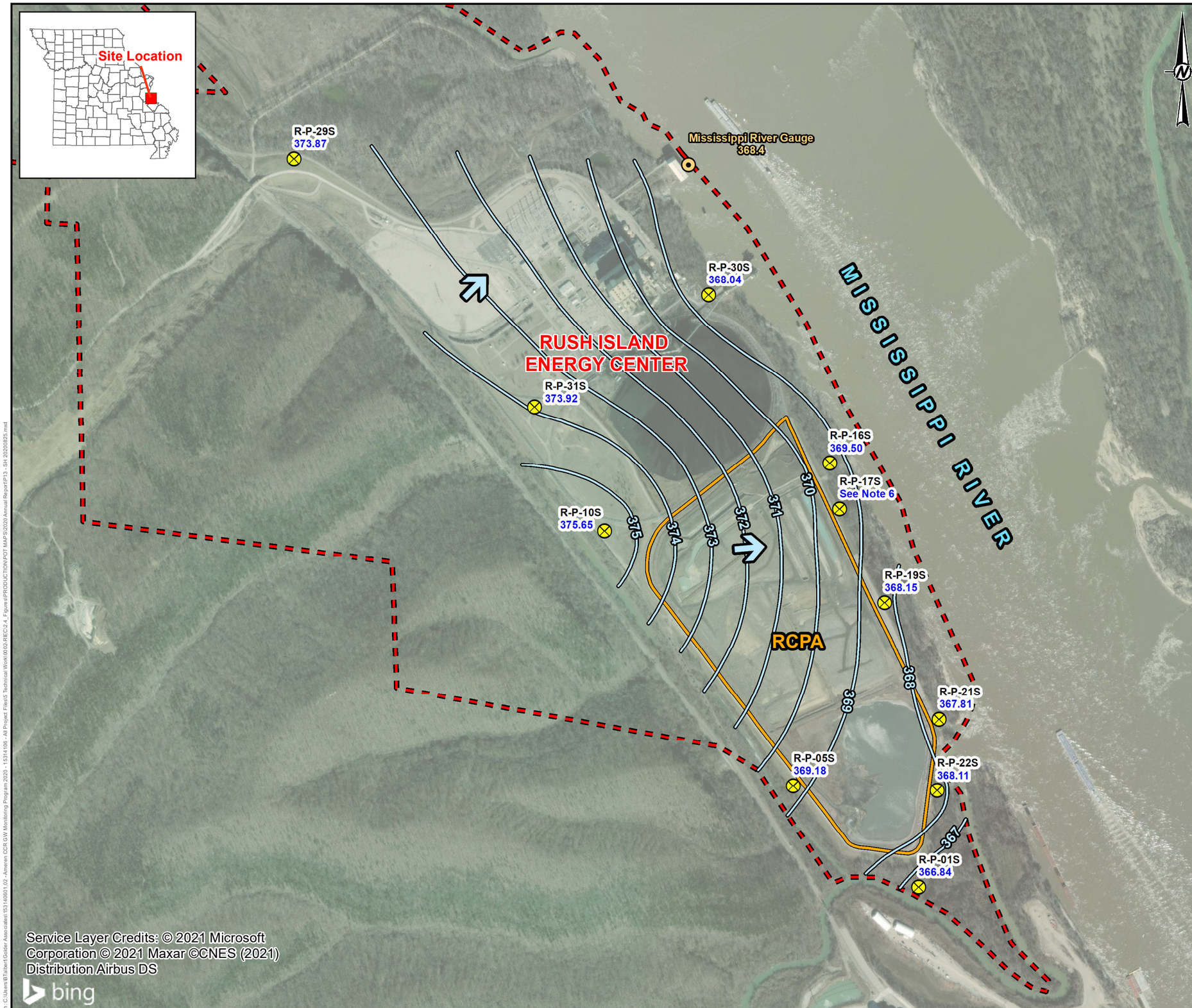


LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) R-P-17S WAS NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERROR.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

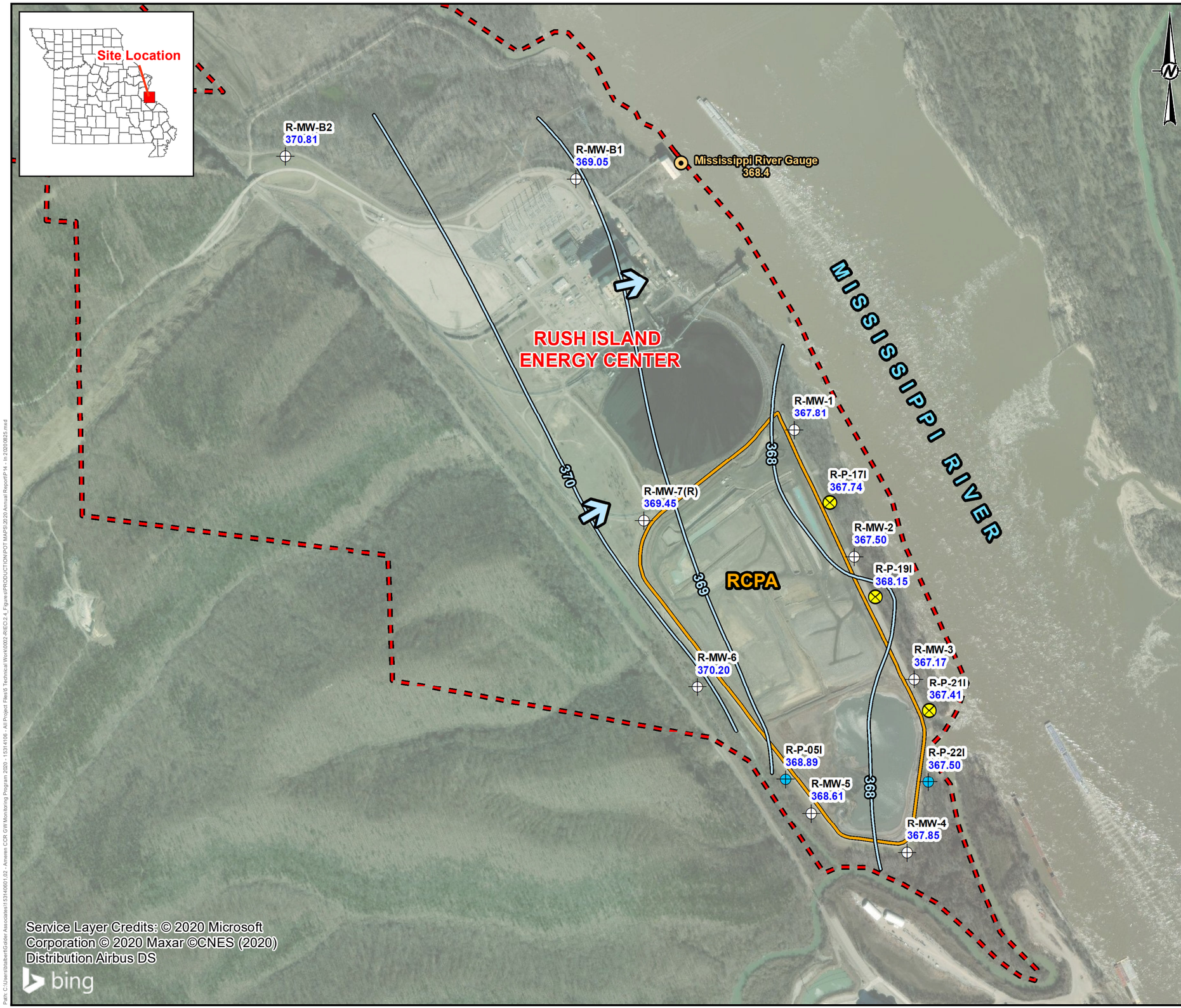
TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - AUGUST 25, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-08-10
PREPARED	EMS
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D13

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



LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

Mississippi River Gauge

CCR Rule Monitoring Wells

Corrective Action Monitoring Wells

Monitoring Well Used for Water Level Elevation Measurements Only

Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - AUGUST 25, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-09-01
PREPARED	EMS
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D14

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

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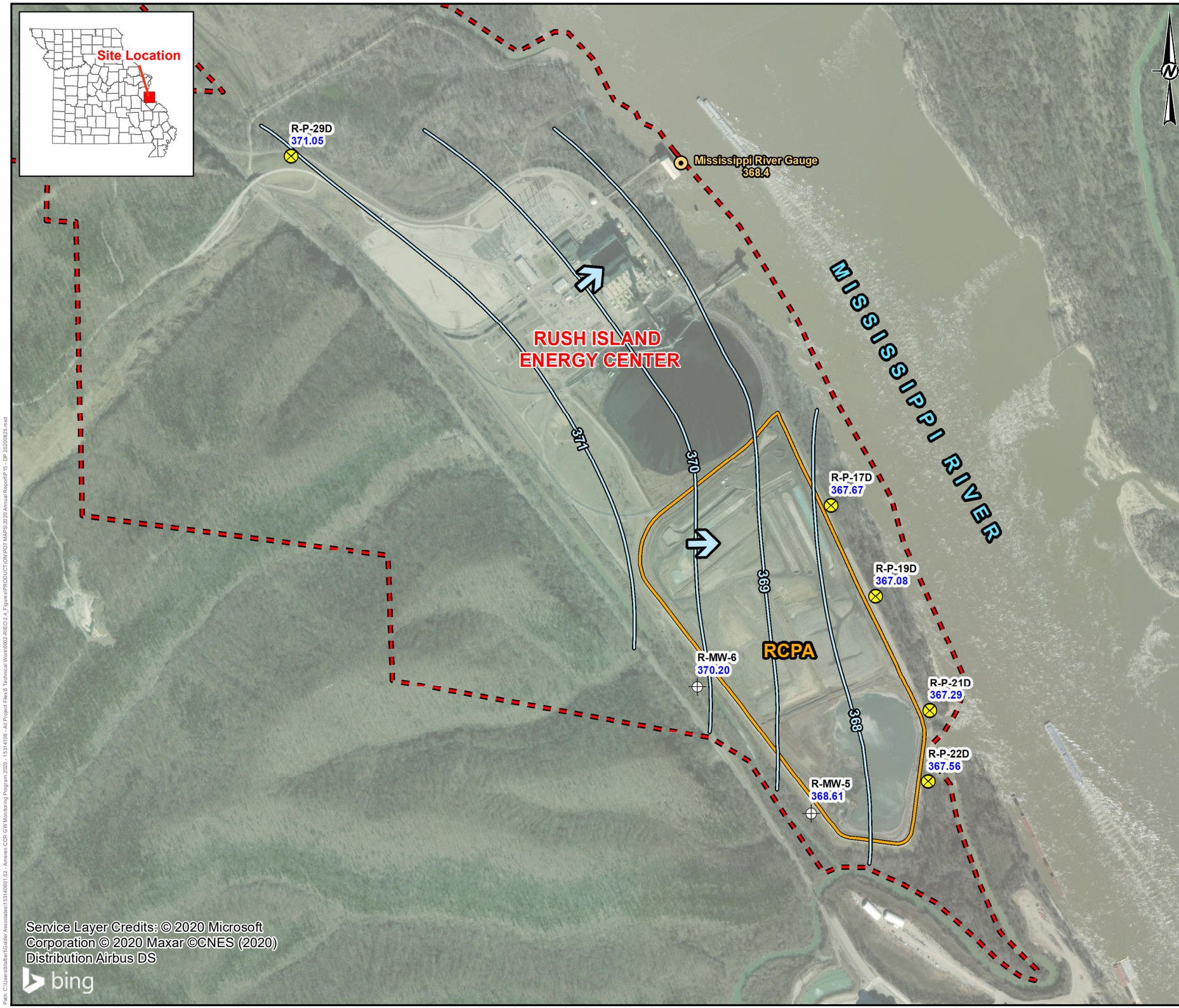

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- CCR Rule Monitoring Wells
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - AUGUST 25, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-08-11
PREPARED	EMS
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D15

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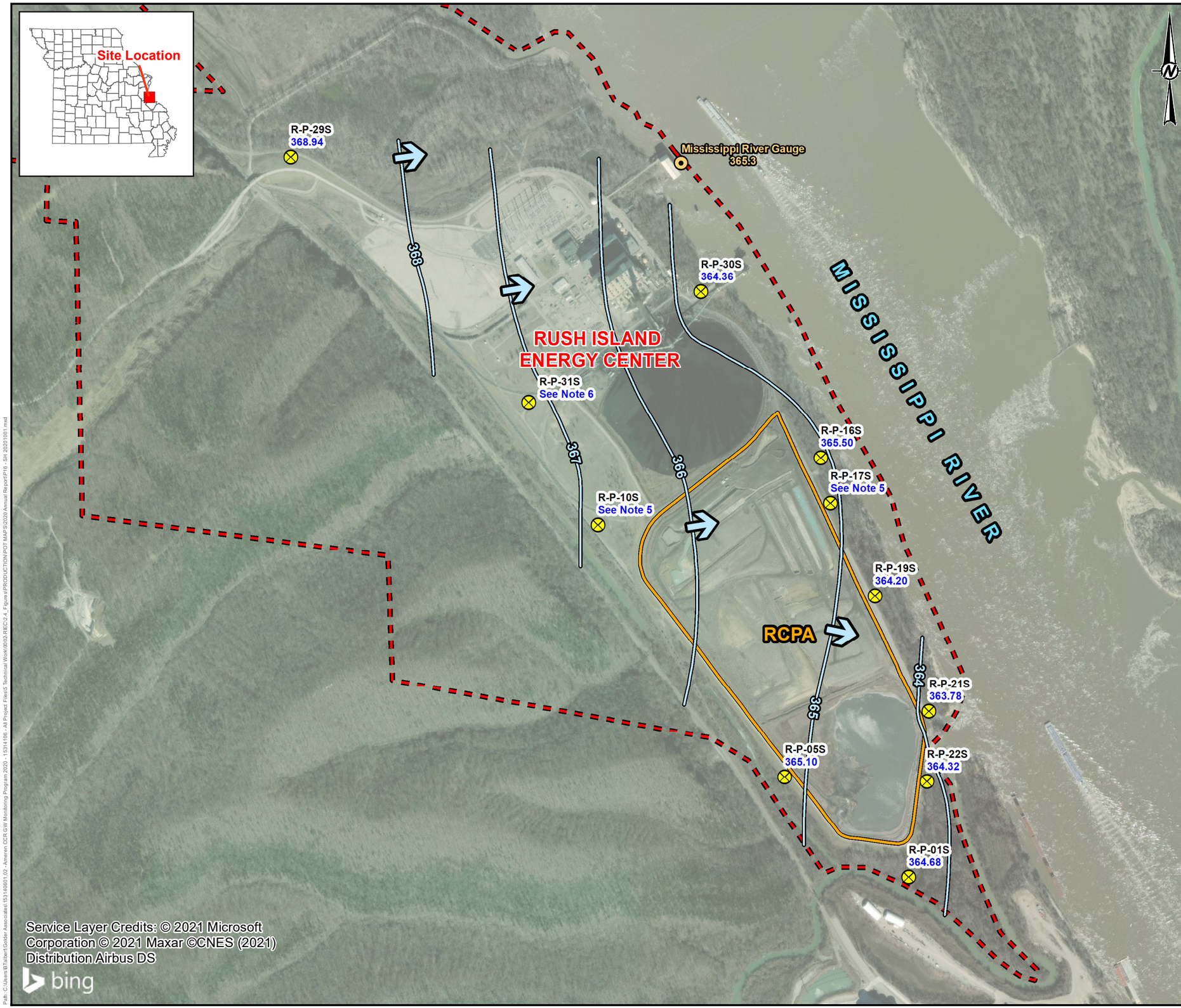

LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) R-P-10S AND R-P-17S WERE NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERRORS.
6.) A WATER LEVEL WAS NOT ABLE TO BE OBTAINED FROM R-P-31S DUE TO LOW WATER LEVEL ELEVATIONS.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - OCTOBER 1, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-10-14
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D16

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1 in
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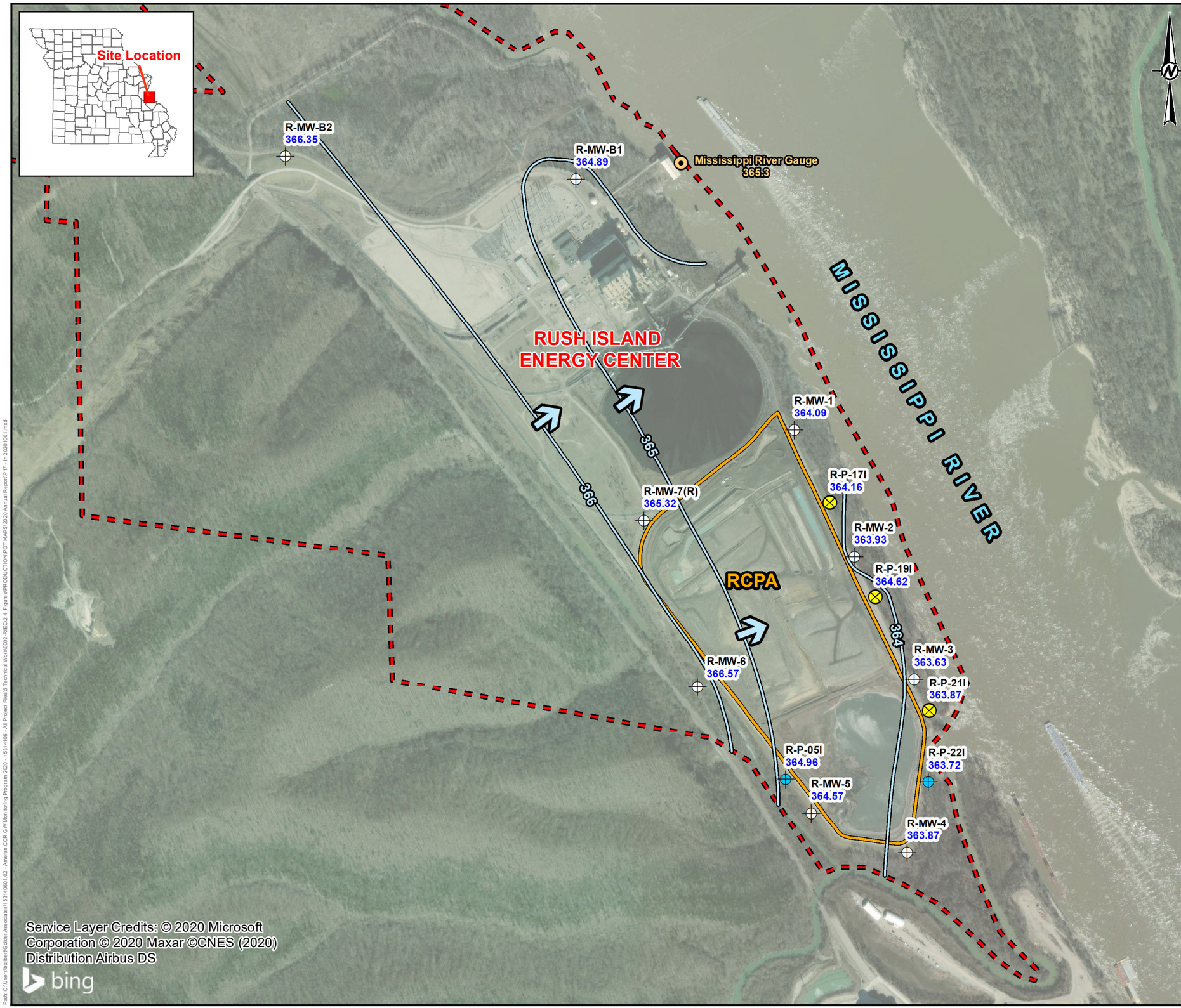


LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- CCR Rule Monitoring Wells
- Corrective Action Monitoring Wells
- Monitoring Well Used for Water Level Elevation Measurements Only
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

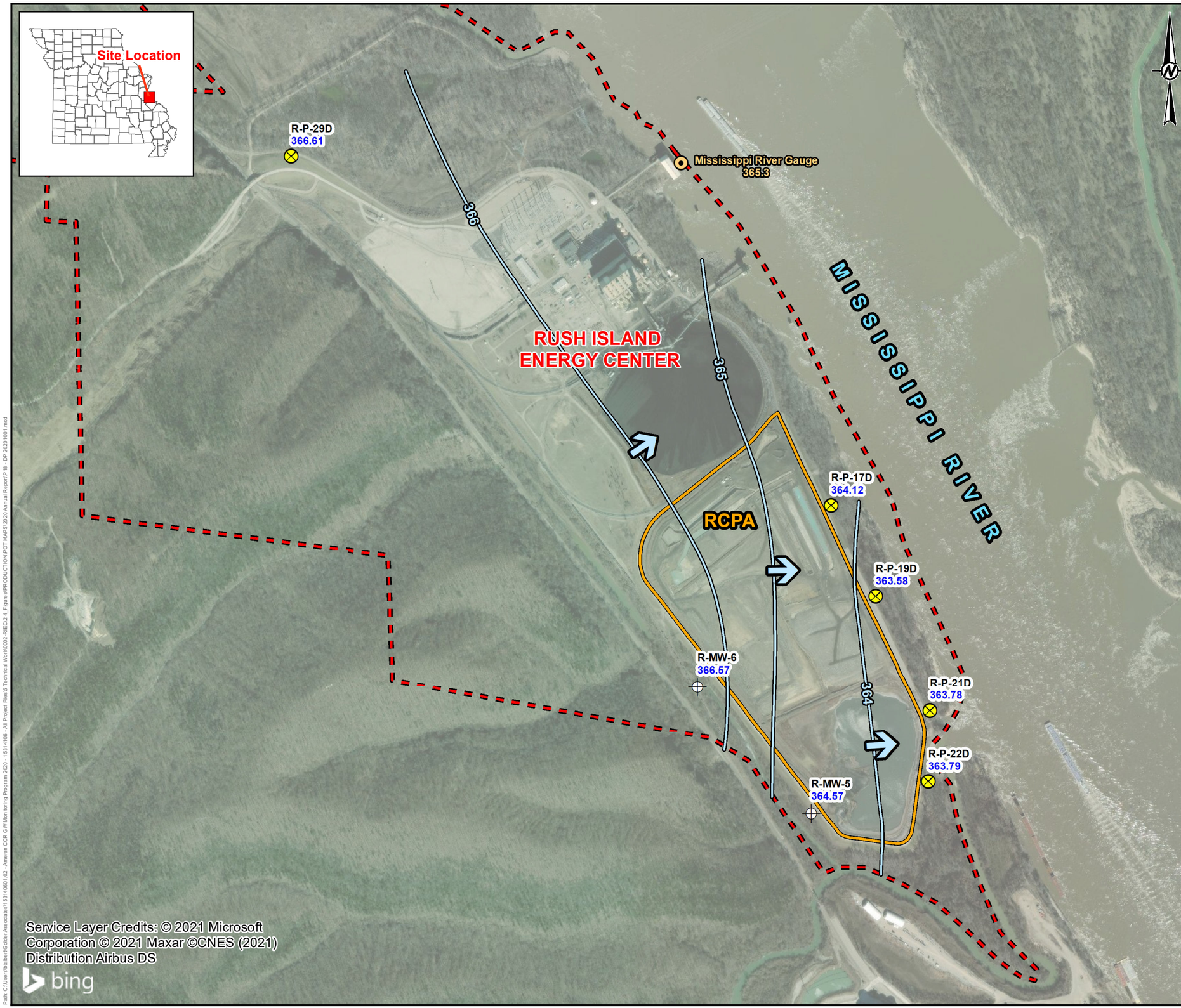
TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - OCTOBER 1, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-10-14
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D17

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



LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

Mississippi River Gauge

CCR Rule Monitoring Wells

Corrective Action Monitoring Wells

Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - OCTOBER 1, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-10-14
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D18

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

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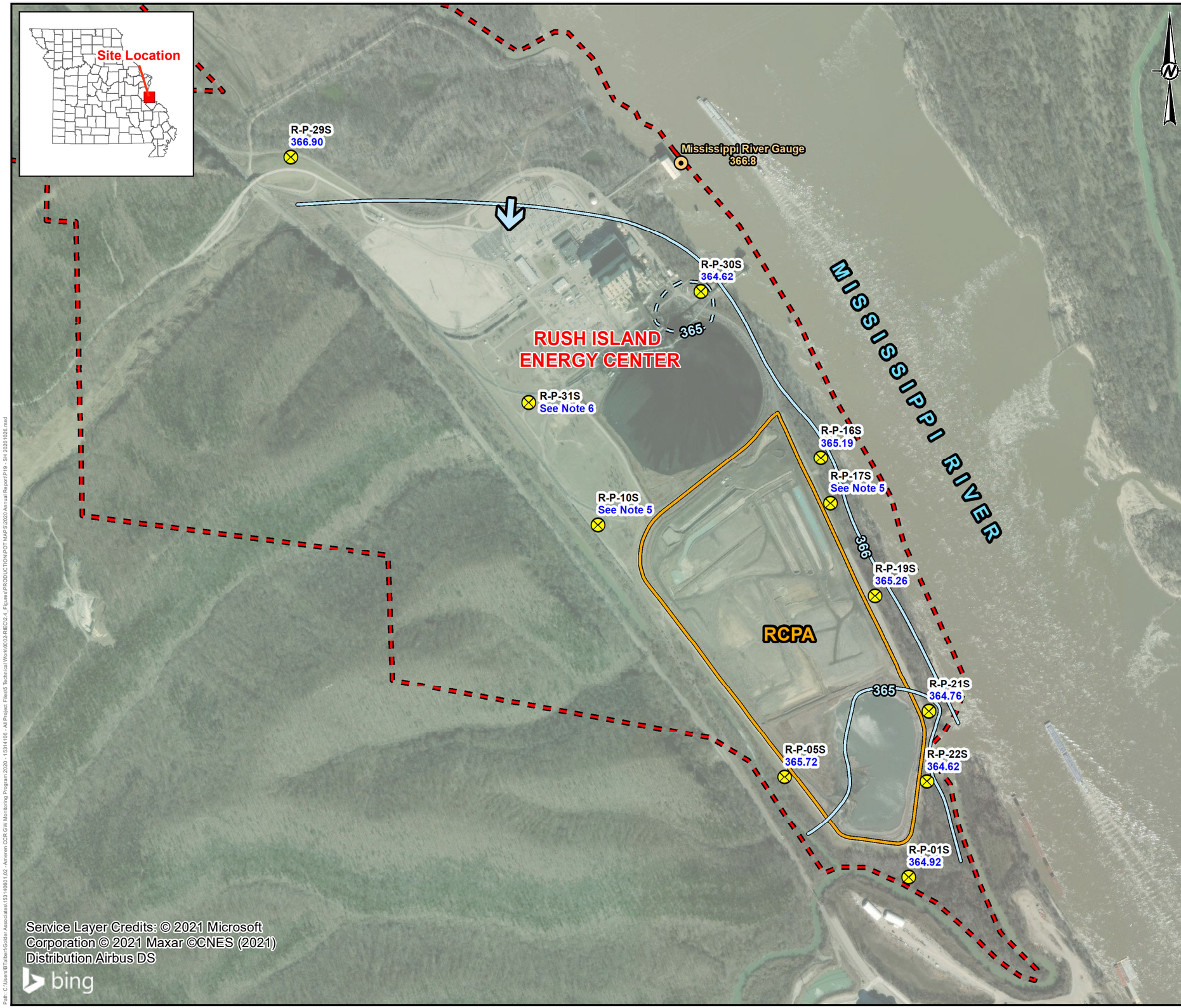

LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Goundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Inferred Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

Mississippi River Gauge

Corrective Action Monitoring Wells

Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
3.) GROUNDWATER ELEVATION MEASUREMENTS OBTAINED BY GOLDER.
4.) MISSISSIPPI RIVER LEVEL PROVIDED BY AMEREN.
5.) R-P-10S AND R-P-17S WERE NOT USED IN POTENTIOMETRIC SURFACE CONTOURING DUE TO MEASUREMENT ERRORS.
6.) A WATER LEVEL WAS NOT ABLE TO BE OBTAINED FROM R-P-31S DUE TO LOW GROUNDWATER ELEVATIONS.

REFERENCES

1.) AMEREN MISSOURI RUSH ISLAND ENERGY CENTER, RUSH ISLAND PROPERTY CONTROL MAP, JANUARY 2012.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - SHALLOW ALLUVIAL AQUIFER ZONE - OCTOBER 26, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-11-30
PREPARED	BTT
DESIGN	JSI
REVIEW	BTT
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D19

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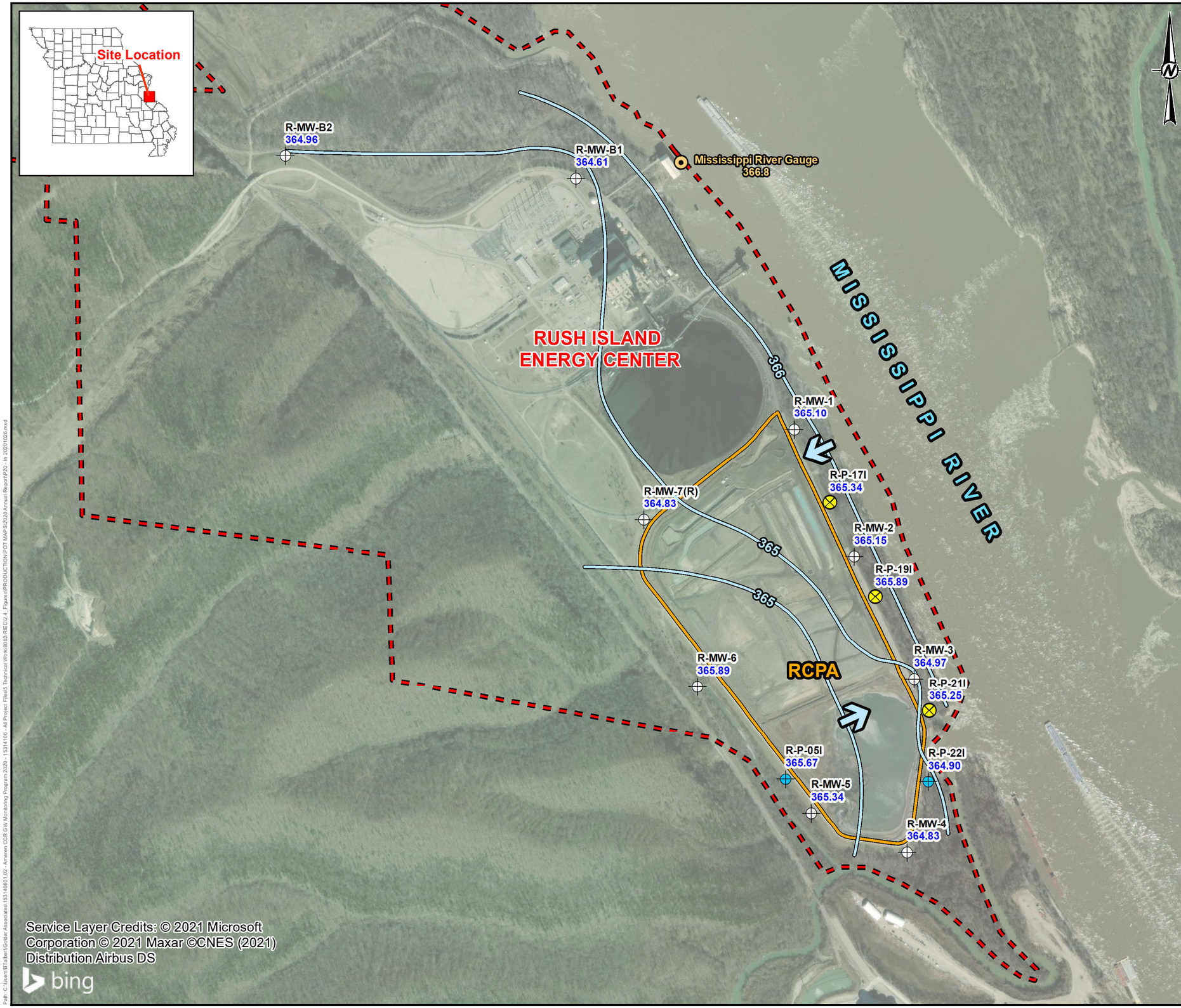
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0



LEGEND

Approximate Rush Island Energy Center Property Boundary

RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

Mississippi River Gauge

CCR Rule Monitoring Wells

Corrective Action Monitoring Wells

Monitoring Well Used for Water Level Elevation Measurements Only

Groundwater Flow Direction

NOTES

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2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.

0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - INTERMEDIATE ALLUVIAL AQUIFER ZONE - OCTOBER 26, 2020

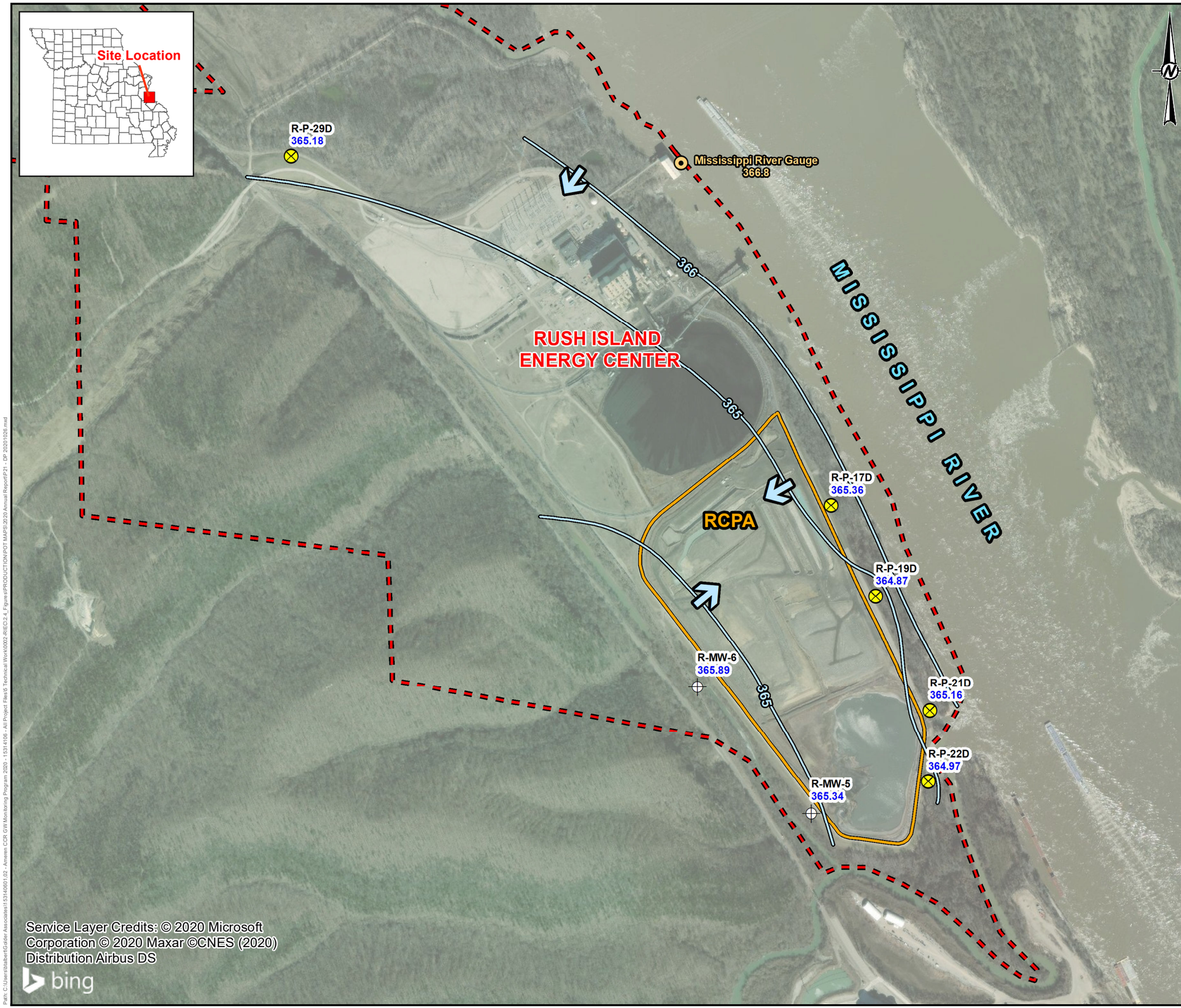
CONSULTANT
GOLDER

YYYY-MM-DD	2020-11-30
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D20

Path: C:\Users\BTallbert.Golder Associates\153140601.02 - Ameren CCR GW Monitoring Program 2020 - 15314106 - All Project Files\5 Technical Work\0002.REC\2.4_Figures\PRODUCTION\POT MAPS\2020 Annual Report\P20 - In 20201026.mxd

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



LEGEND

- Approximate Rush Island Energy Center Property Boundary
- RCPA Surface Impoundment

Groundwater Elevation Contour (FT MSL)

- Groundwater Elevation Contour (FT MSL)

Ground/Surface Water Measurement Locations

- Mississippi River Gauge
- CCR Rule Monitoring Wells
- Corrective Action Monitoring Wells
- Groundwater Flow Direction

NOTES

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0 500 1,000 2,000 Feet

CLIENT
AMEREN MISSOURI
RUSH ISLAND ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
RCPA POTENTIOMETRIC SURFACE MAP - DEEP ALLUVIAL AQUIFER ZONE - OCTOBER 26, 2020

CONSULTANT
GOLDER

YYYY-MM-DD	2020-11-30
PREPARED	BTT
DESIGN	JSI
REVIEW	EMS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-140602	0002	0.0	D21

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

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