REPORT

2017 ANNUAL GROUNDWATER MONITORING REPORT

SCPB, Sioux Energy Center

St. Charles County, Missouri, USA

Submitted To: Ameren Missouri
1901 Chouteau Avenue
St. Louis, Missouri 63103

Submitted By: Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA

Distribution:

1 Electronic Copy	Ameren Missouri
1 Hard Copy	Golder Associates

Date: January 30, 2018

Project No.153-1406

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

This annual report was developed to meet the requirements of United States Environmental Protection Agency (USEPA) 40 CFR Part 257 “Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule” (the CCR Rule). The CCR Rule requires owners or operators of existing CCR units to produce an Annual Groundwater Monitoring and Corrective Action Report (Annual Report) each year (§§ 257.90(e)). Ameren Missouri (Ameren) has determined that the SCPB Surface Impoundment at the Sioux Energy Center (SEC) is subject to the requirements of the CCR Rule. This is the first Annual Report for the SCPB and describes CCR Rule groundwater monitoring activities through December 31, 2017.

A groundwater monitoring well network was designed and installed for the SCPB to meet the requirements of the CCR Rule. The well network consists of two background monitoring wells and nine downgradient monitoring wells that were installed in December 2015 and November 2016. Eight independent baseline sampling events were completed using this well network to sample and test for all Appendix III and Appendix IV parameters, as required by the CCR Rule. The first Detection Monitoring sampling event for the SEC was completed November 13-15, 2017. Statistical analysis of the Detection Monitoring data will be performed in 2018. The SCPB will continue Detection Monitoring on a semi-annual basis and, in accordance with the CCR Rule, statistical analysis of sample results will determine the need for Assessment Monitoring or any efforts related to Assessment of Corrective Measures or potential Corrective Action in the future. As of December 31, 2017, the SCPB groundwater monitoring program status remains in Detection Monitoring.

2.0 INSTALLATION OR DECOMMISSIONING OF MONITORING WELLS

In accordance with the CCR Rule, a groundwater monitoring system has been installed to monitor the SCPB. The groundwater monitoring system consists of eleven monitoring wells screened in the uppermost aquifer (alluvial aquifer). Monitoring wells were installed by Cascade Drilling LP using rotosonic drilling techniques under the direct supervision of a Golder Geologist or Engineer and were installed in accordance with Missouri Department of Natural Resources (MDNR) well construction rules (10 CSR 23-4.060 Construction Standards for Monitoring Wells). A summary of groundwater monitoring well construction details is provided in **Table 1** and **Appendix A**.

2.1 Background Monitoring Well Locations

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

As shown in **Figure 1**, the background monitoring wells are BMW-1S and BMW-3S. These wells are located west of the SCPB and provide background groundwater quality for SCPB monitoring.

2.2 Downgradient Monitoring Well Locations

Downgradient monitoring wells are located around the SCPB to monitor downgradient water quality. **Figure 1** shows that the downgradient well network consists of nine groundwater monitoring wells (LMW-1S, LMW-2S, LMW-3S, LMW-4S, LMW-5S, LMW-6S, LMW-7S, LMW-8S, and LMW-9S) around the SCPB at locations that accurately represent the quality of groundwater passing the waste boundary of the CCR Unit.

3.0 GROUNDWATER SAMPLING RESULTS AND DISCUSSION

3.1 Baseline Sampling Events (Background Events)

As required by the CCR Rule, eight baseline groundwater sampling events were completed prior to October 17, 2017. Groundwater sampling was completed by Golder in accordance with the SCPB Groundwater Monitoring Plan (GMP). As required by the CCR Rule, baseline sampling was completed for all Appendix III and Appendix IV parameters. Groundwater sampling and field parameter results from the initial baseline sampling are provided in **Appendix B** and **Tables 2-9**.

3.2 Detection Monitoring

Detection Monitoring samples for the SEC were collected from the groundwater monitoring wells on November 13-15, 2017**.** As required by the CCR Rule, testing was completed for all Appendix III analytes. Groundwater sampling and field parameter results from the November 2017 Detection Monitoring event are provided in **Appendix B** and **Table 10**. Statistical analyses to evaluate Statistically Significant Increases (SSI) over background in the November 2017 Detection Monitoring data were not completed in 2017. Results of the statistical evaluation will be included in the 2018 Annual Report.

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 C**. As shown on the potentiometric surface maps, groundwater flow direction within the uppermost aquifer is dynamic and directly controlled by the river stages of the Mississippi and Missouri Rivers, since the alluvial aquifer is hydraulically connected to these water bodies. Groundwater in the alluvial aquifer will generally flow from the higher of the two rivers toward the lower elevation river. The SCPA Surface Impoundment and Poeling Lake also locally affect water levels and flow directions. Water flows into and out of the alluvial aquifer as a result of fluctuating river water levels that produce “bank recharge” and “bank discharge” conditions. At this facility, groundwater can flow north and south towards the Mississippi and Missouri Rivers, depending on river levels.

Groundwater flow direction and gradient were estimated for the downgradient CCR monitoring wells using the USEPA’s On-line Tool for Site Assessment Calculation for Hydraulic Gradient (Magnitude and Direction) (USEPA, 2016). Results from this assessment indicate that while groundwater flow direction is variable and gradients are relatively flat, the overall net groundwater flow at the SCPB was slightly toward the east but ranged from northeast to south. Horizontal gradients calculated by the program range from 0.0001 to 0.0007 feet/foot with an estimated net annual groundwater velocity of approximately 8 feet per year.

4.0 STATUS OF THE GROUNDWATER MONITORING PROGRAM

As required by the CCR Rule prior to the October 17, 2017 deadline, the following was completed; (1) a Groundwater Monitoring Well System was installed and certified by a Professional Engineer, (2) a Statistical Method Certification was prepared and certified by a Professional Engineer, and (3) a GMP was prepared recording the design, installation, development, sampling procedures, as well as statistical methods and placed in the owner's operating record. The first Detection Monitoring sampling event for the SEC was completed on November 13-15, 2017. A summary including the number of groundwater samples that were collected for analysis, the dates the samples were collected, and whether the sample was required by baseline, detection or assessment monitoring is provided below in **Table 11**. According to the CCR Rule, statistical evaluation for these samples must be completed within 90 days of completing sampling and analysis. Verification sampling, if needed, and statistical analysis will be completed by January 15, 2018 and included in future reports and notifications as required by the CCR Rule. Semi-annual Detection Monitoring will continue as required by the CCR Rule. Section 5.0 provides discussion of activities planned for 2018.

Table 11 – Summary of Groundwater Sampling Dates

Sampling Event	Groundwater Monitoring Wells											Baseline, Detection or Assessment Monitoring
	BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S	
	Date of Sample Collection											
Baseline Event 1	3/16/2016	11/16/2016	3/17/2016	3/16/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	Baseline
Baseline Event 2	5/9/2016	12/8/2016	5/10/2016	5/10/2016	5/9/2016	5/9/2016	5/9/2016	5/11/2016	5/11/2016	5/11/2016	5/10/2016	Baseline
Baseline Event 3	7/5/2016	1/3/2017	7/5/2016	7/6/2016	7/8/2016	7/8/2016	7/7/2016	7/7/2016	7/8/2016	7/8/2016	7/8/2016	Baseline
Baseline Event 4	9/14/2016	2/2/2017	9/15/2016	9/14/2016	9/15/2016	9/15/2016	9/16/2016	9/16/2016	9/16/2016	9/16/2016	9/16/2016	Baseline
Baseline Event 5	11/7/2016	3/8/2017	11/8/2016	11/8/2016	11/8/2016	11/9/2016	11/8/2016	11/8/2016	11/8/2016	11/8/2016	11/9/2016	Baseline
Baseline Event 6	1/3/2017	4/5/2017	1/5/2017	1/4/2017	1/5/2017	1/5/2017	1/4/2017	1/4/2017	1/4/2017	1/4/2017	1/4/2017	Baseline
Baseline Event 7	3/8/2017	6/5/2017	3/9/2017	3/8/2017	3/8/2017	3/8/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/8/2017	Baseline
Baseline Event 8	6/5/2017	6/26/2017	6/7/2017	6/7/2017	6/6/2017	6/6/2017	6/7/2017	6/7/2017	6/7/2017	6/7/2017	6/7/2017	Baseline
November 2017 Detection Monitoring Event	11/13/2017	11/13/2017	11/14/2017	11/14/2017	11/13/2017	11/13/2017	11/14/2017	11/14/2017	11/14/2017	11/14/2017	11/15/2017	Detection
Total Number of Samples Collected	9	9	9	9	9	9	9	9	9	9	9	NA

Notes:
1) Baseline Events sampled for all Appendix III and Appendix IV parameters.
2) The November 2017 Detection Monitoring Event sampled for Appendix III parameters.
3) NA – Not Applicable.

4.1 Sampling Issues and Monitoring Well Decommissioning

Some sampling issues were encountered during the baseline sampling events. BMW-3S was installed to replace BMW-2S in November 2016. BMW-2S was replaced due to concern that it was not providing groundwater samples that were representative of background water conditions at the SEC. The variable direction of overall groundwater movement at the SEC complicates the placement of background wells. The groundwater can flow north and south depending upon the levels of the Mississippi and Missouri Rivers. Therefore, BMW-2S is no longer used for groundwater monitoring (only for piezometric level measurement) and BMW-3S was installed as a second background well and located to the west of the CCR units at the SEC.

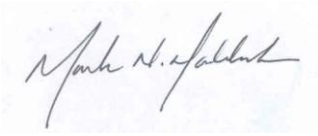
From approximately April 30, 2017 to May 15, 2017, some of the monitoring wells at the SEC were under water due to the flooding of the Mississippi and Missouri Rivers. At the SCPB, the following wells were submerged by flood water: LMW-4S, BMW-3S, and BMW-1S. On May 19, 2017 Golder performed a post flood monitoring well inspection at the SEC and found that none of the SCPB monitoring wells sustained flood damage. Due to access problems resulting from the flood, the wells were not sampled until June 5, 2017. No other notable sampling issues were encountered during the Baseline or Detection Monitoring sampling.

5.0 ACTIVITIES PLANNED FOR 2018

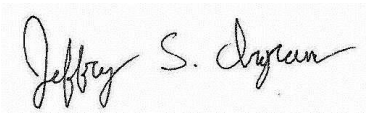
Detection Monitoring sampling is currently scheduled to be completed semi-annually in the second and fourth quarters of 2018, but may be changed due to site conditions (e.g., flooding, access, etc.). Statistical analysis of the November 2017 Detection Monitoring data will be completed by January 15, 2018. If it is determined that there is an SSI over background, Ameren will collect verification samples for all SSIs. Additionally, within 90 days of determining an SSI, Ameren would either establish an Assessment Monitoring program or demonstrate that the SSI was the result of error, or caused by an alternate source.

6.0 CLOSING

GOLDER ASSOCIATES INC.



Mark Haddock, P.E., R.G.
Principal, Practice Leader



Jeffrey Ingram, R.G.
Project Geologist

JSI/RJF/MNH

TABLES

Table 1
Monitoring Well Construction Details
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

Well ID	Date Installed	Location[4]		Top of Casing Elevation	Ground Surface Elevation	Top of Screen	Bottom of Screen	Base of Well	Total Depth
		Northing	Easting	(FT MSL)[5]	(FT MSL)[5]	(FT MSL)[5]	(FT MSL)[5]	(FT MSL)[5]	(FT BGS)[5]
LMW-1S	12/15/2015	1121320.4	879427.2	447.10	445.4	414.8	405.0	404.6	40.8
LMW-2S	12/16/2015	1120332.8	879283.7	447.16	445.2	414.7	404.9	404.5	40.8
LMW-3S	12/8/2015	1119348.8	878856.4	430.17	428.4	414.2	404.4	404.0	24.4
LMW-4S	12/8/2015	1119226.6	879561.5	429.40	427.3	412.4	402.6	402.2	25.1
LMW-5S	12/14/2015	1119250.6	880348.6	447.36	445.5	410.1	400.3	399.9	45.6
LMW-6S	12/14/2015	1119782.0	880867.8	446.00	444.1	414.1	404.3	403.9	40.2
LMW-7S	12/14/2015	1120261.0	880650.0	444.26	442.2	412.3	402.5	402.1	40.2
LMW-8S	12/15/2015	1121024.3	880328.8	446.80	444.8	409.8	400.0	399.6	45.2
LMW-9S	12/18/2015	1121905.9	879849.3	445.57	443.7	414.2	404.4	404.0	39.7
BMW-1S	12/8/2015	1121709.2	876755.6	427.77	426.0	412.0	402.2	401.8	24.2
BMW-3S	11/8/2016	1121792.9	875809.5	426.69	424.1	410.2	400.4	400.0	24.2

Notes:

1.) All elevations and coordinates were surveyed on January 14, 2016 and December 8, 2016 by Zahner and Associates, Inc.

2.) FT MSL = Feet Above Mean Sea Level.

3.) FT BGS = Feet Below Ground Surface.

4.) Horizontal Datum: State Plane Coordinates NAD83 (2000) Missouri East Zone Feet.

5.) Vertical Datum: NAVD88 Feet.

Prepared By: JS
Checked By: JSI
Reviewed By: MNH

Table 2
Baseline Sampling Event 1 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	3/16/2016	11/16/2016	3/17/2016	3/16/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016	3/17/2016
DISSOLVED OXYGEN	mg/L	0.40	1.24	0.49	1.00	3.44	0.67	1.10	1.43	1.92	0.50	0.85
pH	SU	6.84	6.75	7.48	7.19	6.88	6.84	6.56	6.82	6.60	6.60	6.85
REDOX POTENTIAL	mV	-151.2	-43.2	-219.0	-132.9	-87.2	-125.0	104.5	92.9	119.5	13.5	-166.3
SPECIFIC CONDUCTIVITY	mS/cm	0.661	0.727	0.673	1.077	0.932	1.031	1.922	2.006	1.350	1.170	1.588
TURBIDITY	NTU	4.05	2.71	0.33	0.45	1.75	1.90	2.82	0.73	2.10	0.76	2.45
APPENDIX III												
BORON, TOTAL	µg/L	78.1 J	65.4 J	1,940	13,300	303	203	11,900	13,300	1,700	5,780	1,140
CALCIUM, TOTAL	µg/L	150,000	124,000	88,600	171,000	143,000	152,000	292,000	312,000	206,000	152,000	214,000
CHLORIDE, TOTAL	mg/L	8.0	10.1	19.1	77.2	26.4	2.0	32.9	6.4	19.0	39.3	88.6
FLUORIDE, TOTAL	mg/L	0.26	0.33	0.24	0.40	0.24	0.12 J	0.36	0.18 J	0.20 J	0.92	0.36
SULFATE, TOTAL	mg/L	27.8	28.2	114	338	39.2	30.0	842	991	337	396	316
TOTAL DISSOLVED SOLIDS	mg/L	533	438	413	945	536	468	1,610	1,750	940	807	1,040
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC, TOTAL	µg/L	0.99 J	1.0	2.3	2.1	0.49 J	0.72 J	5.9	1.1	0.38 J	2.1	5.6
BARIUM, TOTAL	µg/L	141	194	148	131	137	226	74.8	45.4	119	114	94.5
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	0.50	ND	ND	ND
CHROMIUM, TOTAL	µg/L	0.40 J	0.50 J	ND	ND	0.94 J	0.64 J	0.34 J	ND	0.38 J	0.40 J	ND
COBALT, TOTAL	µg/L	ND	2.0 J	2.8 J	5.0	ND	0.78 J	1.6 J	6.1	6.5	7.6	12.2
LEAD, TOTAL	µg/L	ND	ND	ND	4.4 J	ND	ND	3.9 J	ND	2.5 J	ND	ND
LITHIUM, TOTAL	µg/L	ND	ND	16.9	28.6	21.3	21.4	62.3	25.1	21.2	23.4	44.6
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	2.1 J	6.3 J	72.0	1,400	2.0 J	3.6 J	318	0.88 J	7.8 J	82.7	8.9 J
RADIUM [226 + 228]	pCi/L	ND	1.558	ND	2.025	ND	ND	ND	ND	ND	1.229	ND
SELENIUM, TOTAL	µg/L	0.74 J	0.23 J	0.24 J	ND	2.5	6.3	ND	ND	1.1	ND	ND
THALLIUM, TOTAL	µg/L	ND	ND	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 3
Baseline Sampling Event 2 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	5/9/2016	12/8/2016	5/10/2016	5/10/2016	5/9/2016	5/9/2016	5/9/2016	5/11/2016	5/11/2016	5/11/2016	5/10/2016
DISSOLVED OXYGEN	mg/L	1.88	0.13	1.52	1.38	3.76	2.04	1.56	1.47	1.45	1.29	1.39
pH	SU	5.53	7.11	6.58	6.45	5.96	6.03	6.42	6.63	6.68	6.91	6.68
REDOX POTENTIAL	mV	272.9	-85.8	205.4	31.0	203.2	89.5	165.8	162.3	148.9	64.6	3.7
SPECIFIC CONDUCTIVITY	mS/cm	1.102	0.750	1.012	1.663	1.082	1.271	2.153	2.167	1.514	1.211	1.904
TURBIDITY	NTU	2.66	2.35	1.99	3.37	1.45	0.15	9.19	4.53	2.00	3.32	4.95
APPENDIX III												
BORON, TOTAL	µg/L	65.2 J	70.6 J	1,400	12,700	241	190	11,000	13,900	1,460	4,900	1,070
CALCIUM, TOTAL	µg/L	144,000	128,000	87,200	161,000	126,000	153,000	278,000	286,000	210,000	144,000	213,000
CHLORIDE, TOTAL	mg/L	8.5	12.0	21.6	61.6	21.6	2.4	29.9	4.8	14.0	36.0	85.7
FLUORIDE, TOTAL	mg/L	0.33	0.33	0.29	0.42	0.31	0.25	0.38	0.22	0.34	0.99	0.42
SULFATE, TOTAL	mg/L	26.2	32.2	131	371	38.4	33.4	812	880	301	368	328
TOTAL DISSOLVED SOLIDS	mg/L	517	447	456	915	512	626	1,760	1,680	1,030	826	1,160
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.064 J	0.10 J	0.32 J	0.081 J	0.098 J	0.16 J	0.12 J	0.20 J	0.11 J	0.15 J	ND
ARSENIC, TOTAL	µg/L	1.0	1.4	1.8	1.7	0.43 J	0.60 J	5.6	0.88 J	0.35 J	1.5	4.0
BARIUM, TOTAL	µg/L	137	198	145	118	116	233	75.1	42.2	125	100	84.2
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.097 J	ND	0.040 J	ND	0.037 J	0.035 J	0.96	0.75	0.19 J	0.064 J	ND
CHROMIUM, TOTAL	µg/L	0.44 J	0.57 J	0.53 J	0.62 J	1.3 J	0.77 J	ND	ND	0.61 J	0.46 J	0.71 J
COBALT, TOTAL	µg/L	ND	1.8 J	1.7 J	3.5 J	ND	ND	ND	5.9	2.6 J	4.3 J	10.1
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	ND	7.3 J	16.6	29.9	19.6	23.5	59.5	24.2	20.7	21.1	45.1
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	ND	9.3 J	74.2	1,470	ND	ND	373	ND	ND	89.1	6.8 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	0.998	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	0.74 J	ND	0.92 J	ND	2.5	2.3	ND	ND	2.1	ND	ND
THALLIUM, TOTAL	µg/L	ND	ND	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 4
Baseline Sampling Event 3 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	7/5/2016	1/3/2017	7/5/2016	7/6/2016	7/8/2016	7/8/2016	7/7/2016	7/7/2016	7/8/2016	7/8/2016	7/8/2016
DISSOLVED OXYGEN	mg/L	0.44	1.98	1.95	2.42	4.24	2.30	1.56	2.04	1.50	1.72	2.00
pH	SU	6.66	7.45	7.50	7.27	6.92	7.01	6.84	6.86	6.84	7.10	6.84
REDOX POTENTIAL	mV	83.3	-58.0	41.7	26.1	14.5	65.2	-11.2	29.5	155.1	117.1	62.1
SPECIFIC CONDUCTIVITY	mS/cm	0.875	0.770	1.285	1.187	0.807	0.947	2.027	2.036	1.364	1.078	1.615
TURBIDITY	NTU	3.41	4.82	3.58	4.43	3.82	2.64	7.06	3.57	1.63	4.12	3.86
APPENDIX III												
BORON, TOTAL	µg/L	93.0 J	62.3 J	932	12,200	230	160	11,800	13,400	1,430	4,810	1,270
CALCIUM, TOTAL	µg/L	140,000	110,000	157,000	169,000	120,000	132,000	268,000	283,000	203,000	142,000	215,000
CHLORIDE, TOTAL	mg/L	8.7	8.7	26.0	87.8	18.9	2.1	31.0	6.1	18.1	39.8	81.1
FLUORIDE, TOTAL	mg/L	0.31	0.25	0.21	0.34	0.26	0.18 J	0.36	0.17 J	0.29	0.97	0.30
SULFATE, TOTAL	mg/L	30.2	24.7	431	260	34.1	25.0	790	858	313	361	320
TOTAL DISSOLVED SOLIDS	mg/L	526	419	915	980	512	593	1,620	1,680	1,020	877	1,220
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.063 J	ND	0.35 J	0.13 J	0.12 J	0.14 J	0.12 J	0.19 J	0.10 J	0.59 J	ND
ARSENIC, TOTAL	µg/L	0.88 J	ND	1.7	1.3	0.42 J	0.47 J	0.60 J	0.70 J	0.29 J	1.0	2.2
BARIUM, TOTAL	µg/L	137	675	146	130	110	196	77.4	44.3	114	88.8	73.6
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.095 J	ND	0.083 J	ND	0.054 J	0.11 J	2.1	1.6 J	0.26 J	0.050 J	0.060 J
CHROMIUM, TOTAL	µg/L	ND	0.51 J	0.51 J	ND	0.79 J	ND	0.40 J	ND	ND	ND	ND
COBALT, TOTAL	µg/L	ND	ND	3.4 J	3.6 J	ND	ND	1.0 J	6.9	2.9 J	3.1 J	10.3
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	5.0 J	23.8	23.0	32.3	19.9	21.6	60.8	24.1	21.5	21.2	45.6
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	2.5 J	ND	63.8	1,500	2.0 J	3.4 J	497	1.3 J	2.9 J	89.6	6.9 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	0.25 J	ND	11.7	ND	2.2	4.4	ND	ND	0.54 J	ND	ND
THALLIUM, TOTAL	µg/L	ND	ND	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 5
Baseline Sampling Event 4 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	9/14/2016	2/2/2017	9/15/2016	9/14/2016	9/15/2016	9/15/2016	9/16/2016	9/16/2016	9/16/2016	9/16/2016	9/16/2016
DISSOLVED OXYGEN	mg/L	1.20	0.47	2.19	0.81	2.84	0.62	1.18	1.05	1.46	0.91	1.28
pH	SU	6.90	6.59	7.04	6.56	6.06	6.70	6.28	6.70	6.55	7.04	6.63
REDOX POTENTIAL	mV	180.0	-17.0	126.7	-5.7	57.1	75.8	46.5	81.3	17.8	42.4	-15.0
SPECIFIC CONDUCTIVITY	mS/cm	0.774	0.580	1.366	1.266	0.874	1.042	2.245	2.106	1.485	1.237	1.764
TURBIDITY	NTU	4.61	4.90	1.69	1.19	3.44	3.07	4.82	4.95	4.46	4.95	4.81
APPENDIX III												
BORON, TOTAL	µg/L	165	61.5 J	1,890	11,000	246	71.0 J	13,800	13,400	1,690	5,660	1,430
CALCIUM, TOTAL	µg/L	124,000	127,000	153,000	182,000	117,000	141,000	286,000	268,000	214,000	152,000	226,000
CHLORIDE, TOTAL	mg/L	1.9	10.0	54.8	116	20.0	7.7	33.7	5.0	15.4	39.4	76.1
FLUORIDE, TOTAL	mg/L	0.16 J	0.37	0.18 J	0.35	0.27	0.26	0.45	0.17 J	0.31	1.0	0.38
SULFATE, TOTAL	mg/L	23.4	27.1	307	228	34.7	25.0	968	842	293	386	303
TOTAL DISSOLVED SOLIDS	mg/L	565	455	865	1,040	474	542	1,730	1,610	979	822	1,170
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.16 J	ND	0.36 J	0.14 J	0.12 J	0.081 J	0.12 J	0.22 J	0.12 J	0.19 J	0.073 J
ARSENIC, TOTAL	µg/L	0.38 J	1.3	1.7	1.2	0.41 J	0.86 J	0.39 J	0.42 J	0.17 J	1.1	1.6
BARIUM, TOTAL	µg/L	199	146	102	139	121	143	66.7	42.1	123	99.4	79.8
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	ND	0.19 J	ND	0.049 J	1.1	0.50 J	0.18 J	0.082 J	0.10 J
CHROMIUM, TOTAL	µg/L	0.53 J	0.50 J	ND	ND	0.58 J	0.34 J	0.56 J	0.40 J	0.36 J	0.46 J	ND
COBALT, TOTAL	µg/L	ND	2.2 J	1.7 J	5.1	ND	ND	1.1 J	7.5	2.6 J	4.1 J	11.5
LEAD, TOTAL	µg/L	ND	ND	ND	2.5 J	ND	ND	ND	ND	ND	ND	2.5 J
LITHIUM, TOTAL	µg/L	21.0	ND	22.3	30.8	18.1	ND	60.4	23.1	20.7	20.6	48.7
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	2.7 J	2.6 J	54.5	1,160	3.1 J	2.3 J	753	ND	ND	124	7.8 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	5.5	ND	8.3	ND	2.6	0.43 J	0.26 J	ND	1.5	ND	0.19 J
THALLIUM, TOTAL	µg/L	ND	0.041 J	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 6
Baseline Sampling Event 5 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	11/7/2016	3/8/2017	11/8/2016	11/8/2016	11/8/2016	11/9/2016	11/8/2016	11/8/2016	11/8/2016	11/8/2016	11/9/2016
DISSOLVED OXYGEN	mg/L	0.86	0.52	1.69	0.78	2.66	0.41	0.42	0.78	1.06	0.63	0.29
pH	SU	6.89	7.08	7.37	7.32	6.91	7.30	6.82	6.62	6.70	7.07	6.55
REDOX POTENTIAL	mV	96.9	13.7	-17.4	76.0	3.6	76.4	-41.4	204.1	188.2	-32.6	74.9
SPECIFIC CONDUCTIVITY	mS/cm	0.979	0.687	0.804	1.604	0.889	1.262	2.339	2.075	1.553	1.257	2.278
TURBIDITY	NTU	1.96	2.15	0.53	3.02	2.83	3.03	4.87	2.89	2.38	1.10	2.51
APPENDIX III												
BORON, TOTAL	µg/L	107	ND	1,380	10,700	268	163	14,200	13,900	2,370	5,890	1,400
CALCIUM, TOTAL	µg/L	151,000	134,000	87,400	193,000	121,000	129,000	282,000	269,000	227,000	157,000	218,000
CHLORIDE, TOTAL	mg/L	8.2	10.0	24.9	122	19.7	2.0	31.4	4.1	19.1	37.3	74.0
FLUORIDE, TOTAL	mg/L	0.32	0.34	0.26	0.40	0.32	0.20 J	0.54	0.42	0.32	0.98	0.40
SULFATE, TOTAL	mg/L	34.8	26.1	115	245	34.5	22.9	1,100	823	335	386	310
TOTAL DISSOLVED SOLIDS	mg/L	540	455	451	987	494	525	1,720	1,560	1,050	823	1,150
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.084 J	0.042 J	0.35 J	0.14 J	0.086 J	0.16 J	0.12 J	0.20 J	0.10 J	0.17 J	0.086 J
ARSENIC, TOTAL	µg/L	0.91 J	1.2	1.8	1.3	0.46 J	0.47 J	0.39 J	0.50 J	0.17 J	1.0	0.85 J
BARIUM, TOTAL	µg/L	139	124	72.8	138	125	212	61.9	40.7	123	96.8	74.3
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	0.044 J	0.18 J	0.042 J	0.053 J	0.55	0.60	0.26 J	0.081 J	0.18 J
CHROMIUM, TOTAL	µg/L	ND	ND	0.47 J	ND	0.78 J	1.0	0.37 J	0.48 J	0.37 J	ND	0.70 J
COBALT, TOTAL	µg/L	ND	1.8 J	0.81 J	5.2	ND	ND	1.1 J	7.2	2.6 J	4.0 J	9.7
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	7.4 J	6.0 J	17.9	33.9	18.7	22.7	60.4	26.8	25.2	23.0	51.0
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	ND	3.1 J	65.0	1,040	ND	ND	872	ND	ND	148	7.4 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	1.645	ND	ND	ND	ND	ND	ND
SELENIUM, TOTAL	µg/L	0.18 J	ND	1.8	ND	2.6	5.3	ND	ND	2.0	ND	0.37 J
THALLIUM, TOTAL	µg/L	ND	0.092 J	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 7
Baseline Sampling Event 6 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	1/3/2017	4/5/2017	1/5/2017	1/4/2017	1/5/2017	1/5/2017	1/4/2017	1/4/2017	1/4/2017	1/4/2017	1/4/2017
DISSOLVED OXYGEN	mg/L	0.50	0.46	0.57	0.29	1.81	1.13	0.46	0.52	1.08	0.39	0.76
pH	SU	7.24	5.79	7.31	6.89	7.34	6.96	6.68	6.76	6.74	6.90	6.68
REDOX POTENTIAL	mV	-55.3	215.3	100.2	-33.0	-28.1	-81.4	168.1	10.4	-2.5	43.3	-11.7
SPECIFIC CONDUCTIVITY	mS/cm	0.909	0.749	0.631	1.793	0.879	0.904	1.887	2.031	1.475	1.184	1.680
TURBIDITY	NTU	0.97	3.92	1.72	1.81	4.06	4.88	4.96	2.48	3.28	2.61	1.70
APPENDIX III												
BORON, TOTAL	µg/L	82.2 J	68.8 J	564	8,860	237	178	10,800	15,600	2,580	6,060	1,510
CALCIUM, TOTAL	µg/L	158,000	122,000	67,200	248,000	131,000	125,000	257,000	300,000	246,000	164,000	235,000
CHLORIDE, TOTAL	mg/L	7.6	10.0	20.5	216	22.7	2.0	28.5	4.4	19.7	43.5	73.4
FLUORIDE, TOTAL	mg/L	0.29	0.37	0.25	0.31	0.29	0.19 J	0.42	0.12 J	0.27	1.0	0.30
SULFATE, TOTAL	mg/L	26.5	27.6	77.6	218	37.3	29.8	749	856	371	402	286
TOTAL DISSOLVED SOLIDS	mg/L	533	447	367	1,100	516	527	1,390	1,650	1,070	773	1,090
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.084 J	0.033 J	0.34 J	0.18 J	0.11 J	0.20 J	0.13 J	0.22 J	0.10 J	0.28 J	ND
ARSENIC, TOTAL	µg/L	0.71 J	0.89 J	1.7	0.82 J	0.24 J	0.50 J	0.23 J	0.35 J	0.14 J	0.63 J	1.6
BARIUM, TOTAL	µg/L	152	118	77.5	165	144	209	66.8	46.9	136	107	79.2
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	ND	ND	0.084 J	0.39 J	0.054 J	0.059 J	0.73 J	0.55	0.30 J	0.59	ND
CHROMIUM, TOTAL	µg/L	0.57 J	0.32 J	0.46 J	ND	0.92 J	1.1	0.63 J	ND	0.46 J	0.63 J	0.66 J
COBALT, TOTAL	µg/L	ND	1.9 J	ND	5.9	ND	ND	ND	8.0	3.7 J	6.6	9.4
LEAD, TOTAL	µg/L	ND	ND	2.7 J	ND	ND	3.1 J	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	ND	8.7 J	14.5	39.4	19.5	21.2	57.4	26.4	26.8	23.1	54.0
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	0.071 J	ND	ND	ND	0.065 J
MOLYBDENUM, TOTAL	µg/L	2.2 J	4.8 J	84.8	861	ND	ND	668	ND	2.5 J	169	6.8 J
RADIUM [226 + 228]	pCi/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.536	ND
SELENIUM, TOTAL	µg/L	0.30 J	ND	1.0	ND	2.1	5.0	ND	ND	2.5	0.22 J	ND
THALLIUM, TOTAL	µg/L	ND	ND	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 8
Baseline Sampling Event 7 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	3/8/2017	6/5/2017	3/9/2017	3/8/2017	3/8/2017	3/8/2017	3/9/2017	3/9/2017	3/9/2017	3/9/2017	3/8/2017
DISSOLVED OXYGEN	mg/L	0.44	0.69	0.49	0.84	0.98	1.01	0.78	1.06	0.57	1.08	0.82
pH	SU	7.25	7.06	7.28	6.73	7.10	6.44	6.66	6.72	6.65	6.73	6.71
REDOX POTENTIAL	mV	-16.2	7.0	33.8	32.6	15.7	8.7	105.3	100.5	78.6	93.2	20.8
SPECIFIC CONDUCTIVITY	mS/cm	0.827	0.747	0.595	1.670	0.860	0.812	1.862	2.051	1.505	1.218	1.471
TURBIDITY	NTU	0.70	3.94	2.07	0.96	1.34	2.03	4.93	3.89	2.51	1.06	1.71
APPENDIX III												
BORON, TOTAL	µg/L	84.6 J	55.3 J	394	8,150	301	240	11,100	16,200	2,230	5,880	1,430
CALCIUM, TOTAL	µg/L	162,000	113,000	78,200	266,000	164,000	160,000	271,000	343,000	274,000	180,000	239,000
CHLORIDE, TOTAL	mg/L	9.7	10.5	18.8	219	31.5	4.1 J	26.1	3.9	15.3	45.6	70.7
FLUORIDE, TOTAL	mg/L	0.30	0.33	0.28	0.38	0.29	0.20	0.48	0.13 J	0.28	0.79	0.35
SULFATE, TOTAL	mg/L	27.6	25.0	68.5	206	37.2	40.8	713	1,030	443	417	282
TOTAL DISSOLVED SOLIDS	mg/L	532	426	330	1,180	581	592	1,390	1,720	1,090	860	1,110
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.076 J	0.039 J	0.37 J	0.16 J	0.090 J	0.16 J	0.11 J	0.22 J	0.095 J	0.22 J	0.059 J
ARSENIC, TOTAL	µg/L	0.91 J	0.64 J	1.8	1.1	ND	0.62 J	ND	0.61 J	ND	0.75 J	0.94 J
BARIUM, TOTAL	µg/L	151	180	102	155	169	252	68.8	52.1	143	107	72.3
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.12 J	ND	0.047 J	0.14 J	0.080 J	0.17 J	0.72	0.96	0.35 J	0.86	0.13 J
CHROMIUM, TOTAL	µg/L	ND	0.12 J	ND	ND	1.6	1.0 J	ND	1.4	ND	ND	ND
COBALT, TOTAL	µg/L	ND	2.0 J	1.1 J	6.0	ND	ND	1.3 J	8.5	2.4 J	8.9	9.3
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	4.4 J	ND	14.1	31.3	20.6	21.6	53.0	21.5	20.5	19.8	48.1
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	1.4 J	2.4 J	75.0	798	ND	2.2 J	714	ND	ND	173	4.2 J
RADIUM [226 + 228]	pCi/L	ND	1.421	ND	ND	ND	ND	ND	ND	1.604	ND	ND
SELENIUM, TOTAL	µg/L	0.37 J	0.095 J	1.4	0.088 J	1.6	5.0	0.13 J	ND	3.3	0.30 J	0.14 J
THALLIUM, TOTAL	µg/L	ND	ND	ND	0.25 J	ND	0.047 J	0.043 J	0.041 J	0.042 J	0.043 J	0.043 J

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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 9
Baseline Sampling Event 8 Results
SCPB Surface Impoundment
Sioux Energy Center, St. Charles County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	6/5/2017	6/26/2017	6/7/2017	6/7/2017	6/6/2017	6/6/2017	6/7/2017	6/7/2017	6/7/2017	6/7/2017	6/7/2017
DISSOLVED OXYGEN	mg/L	0.90	0.57	0.27	2.01	0.93	0.14	1.85	1.13	1.64	0.68	1.94
pH	SU	6.89	6.77	7.24	6.59	6.82	6.83	6.48	6.50	6.61	6.78	6.55
REDOX POTENTIAL	mV	24.9	11.7	7.0	80.9	114.6	115.9	76.8	95.5	74.1	47.2	32.3
SPECIFIC CONDUCTIVITY	mS/cm	0.875	0.758	0.594	1.394	0.978	0.943	1.755	1.695	1.354	1.262	1.389
TURBIDITY	NTU	2.63	1.37	0.65	1.18	0.74	1.72	3.80	3.02	3.33	1.65	2.73
APPENDIX III												
BORON, TOTAL	µg/L	65.3 J	64.6 J	351	9,660	253	302	12,600	14,500	3,320	6,500	1,500
CALCIUM, TOTAL	µg/L	140,000	121,000	74,300	195,000	149,000	141,000	248,000	264,000	225,000	160,000	196,000
CHLORIDE, TOTAL	mg/L	16.8	10.2	20.5	132	33.2	6.1	23.5	3.2	24.8	51.4	93.1
FLUORIDE, TOTAL	mg/L	0.38	0.34	0.26	0.30	0.24	0.17 J	0.29	0.16 J	0.32	0.83	0.36
SULFATE, TOTAL	mg/L	23.1	23.8	49.2	265	36.5	55.2	771	774	426	422	287
TOTAL DISSOLVED SOLIDS	mg/L	409	436	348	1,090	572	604	1,550	1,590	1,180	976	1,090
APPENDIX IV												
ANTIMONY, TOTAL	µg/L	0.093 J	0.055 J	0.37 J	0.18 J	0.098 J	0.12 J	0.13 J	0.21 J	0.097 J	0.22 J	0.13 J
ARSENIC, TOTAL	µg/L	0.73 J	0.41 J	1.8	0.62 J	0.25 J	0.24 J	0.45 J	0.30 J	0.097 J	0.76 J	0.54 J
BARIUM, TOTAL	µg/L	146	152	128	133	169	239	72.9	49.8	121	111	77.0
BERYLLIUM, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	µg/L	0.10 J	ND	0.063 J	0.35 J	0.024 J	0.16 J	0.65	0.58	0.30 J	0.74	0.22 J
CHROMIUM, TOTAL	µg/L	0.18 J	ND	0.12 J	ND	0.48 J	0.13 J	ND	0.93 J	0.16 J	1.5 J	0.17 J
COBALT, TOTAL	µg/L	ND	1.2 J	0.89 J	3.9 J	ND	ND	ND	7.2	2.3 J	6.1	5.5
LEAD, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	µg/L	ND	9.5 J	11.5	35.4	20.3	23.0	55.5	19.2	20.5	17.2	41.7
MERCURY, TOTAL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	µg/L	2.5 J	3.1 J	67.3	1,070	ND	2.1 J	870	ND	2.2 J	346	14.5 J
RADIUM [226 + 228]	pCi/L	ND	ND	1.066	ND	ND	ND	ND	1.352	1.326	ND	ND
SELENIUM, TOTAL	µg/L	0.18 J	0.22 J	1.5	0.12 J	2.3	2.3	ND	ND	0.45 J	0.33 J	0.65 J
THALLIUM, TOTAL	µg/L	ND	ND	0.10 J	0.041 J	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, NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect.
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.

Prepared By: JSI 12/1/2017
Checked By: RJF 12/15/2017
Reviewed By: MNH 1/18/2018

Table 10
November 2017 Detection Monitoring Results
SCPB Surface Impoundment
Sioux Energy Center, Franklin County, MO

ANALYTE	UNITS	BACKGROUND		GROUNDWATER MONITORING WELLS								
		BMW-1S	BMW-3S	LMW-1S	LMW-2S	LMW-3S	LMW-4S	LMW-5S	LMW-6S	LMW-7S	LMW-8S	LMW-9S
FIELD PARAMETERS												
DATE	NA	11/13/2017	11/13/2017	11/14/2017	11/14/2017	11/13/2017	11/13/2017	11/14/2017	11/14/2017	11/14/2017	11/14/2017	11/15/2017
DISSOLVED OXYGEN	mg/L	0.51	0.71	1.16	1.80	2.82	1.54	1.35	1.65	1.54	1.08	0.51
pH	SU	6.95	7.08	7.43	7.12	7.17	7.16	6.98	7.00	6.93	6.79	6.94
REDOX POTENTIAL	mV	-14.6	-36.1	23.7	65.6	-3.2	12.1	56.1	65.8	73.2	110.9	206.9
SPECIFIC CONDUCTIVITY	mS/cm	0.891	0.744	0.790	1.565	0.928	0.901	1.821	1.913	1.600	1.344	1.467
TURBIDITY	NTU	2.51	3.02	0.48	2.19	4.42	3.85	3.04	4.95	4.60	3.70	0.64
APPENDIX III												
BORON, TOTAL	µg/L	118	104	1,390	11,600	303	267	8,220	18,000	2,630	6,880	1,470
CALCIUM, TOTAL	µg/L	156,000	128,000	98,500	200,000	153,000	154,000	236,000	269,000	256,000	178,000	193,000
CHLORIDE, TOTAL	mg/L	7.7	10.5	24.4	156	29.6	3.0	29.5	3.0	14.1	52.2	89.6
FLUORIDE, TOTAL	mg/L	0.30	0.34	0.41	0.40	0.28	0.19 J	0.51	0.21	0.28	0.89	0.41
SULFATE, TOTAL	mg/L	41.4	28.2	113	268	38.2	34.6	585	792	519	463	302
TOTAL DISSOLVED SOLIDS	mg/L	526	446	471	958	545	544	1,180	1,500	1,140	941	997

NOTES
1. Unit Abbreviations: µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, mV - millivolts, mS/cm - millisiemens per centimeter, and NTU - nephelometric turbidity unit.
2. J - Result is an estimated value.
3. ND - Constituent was analyzed for, but was not detected above the Method Detection Limit (MDL) and is considered a non-detect. Values displayed as ND.
4. NA - Not applicable.

Prepared By: JSI
Checked By: RJF
Reviewed By: MNH

FIGURES

LEGEND

Sioux Energy Center Property Boundary

SCPB - Fly Ash Surface Impoundment

Sample/Measurement Locations

Background Monitoring Well

SCPB Fly Ash Surface Impoundment Monitoring Well

Groundwater Elevation Piezometer

KEY MAP

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14 AND DECEMBER 8, 2016.

REFERENCES

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2401 FEET.
3.) AMEREN MISSOURI DRAWING SX-8420-X-182001.
4.) GOOGLE EARTH®.

0 500 1,000 2,000 3,000 4,000 Feet

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
GROUNDWATER MONITORING PROGRAM

TITLE
SITE LOCATION AERIAL MAP AND MONITORING WELL LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-08-29
PREPARED	JSI
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No.	PHASE	Rev.	FIGURE
153-1406	0003B	0.0	1

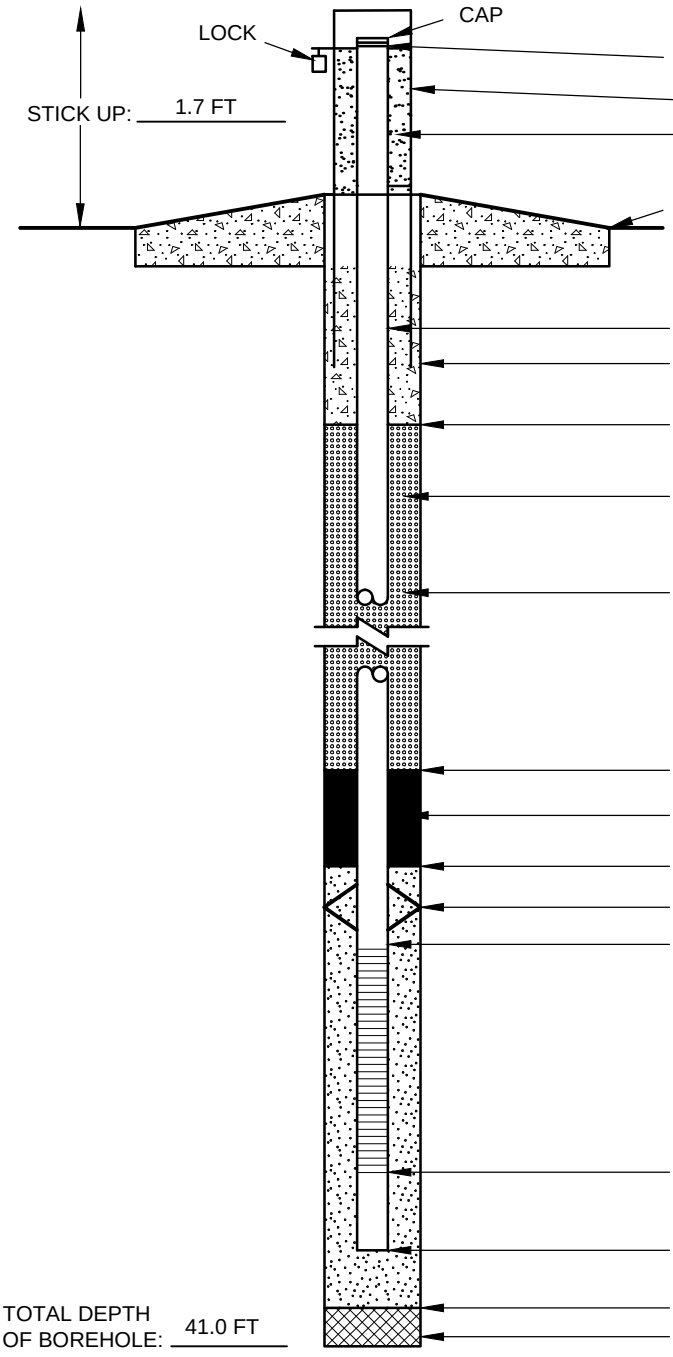
Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\SCPB\Figure 2 - SCPB - Aerial Map (Rev 1.0).mxd

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

APPENDIX A – CCR MONITORING WELL CONSTRUCTION DIAGRAMS

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-1S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-1S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 445.4 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1121320.4	EASTING: 879427.2
DRILLER: J. DRABEK	STATIC WATER LEVEL: 26.75 FT BTOC	COMPLETION DATE: 12/15/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



TOP OF CASING ELEVATION: 447.10 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 445.4 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 2 BAGS

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

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

TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 1 BAG

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

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 30.6

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

AMOUNT OF SAND: COARSE: $3\frac{1}{3}$ BAGS FINE: $\frac{1}{3}$ BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 40.4

BOTTOM OF WELL DEPTH (ft. bgs): 40.8

BOTTOM OF FILTER PACK (ft. bgs): 40.8

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

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 75 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016. FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

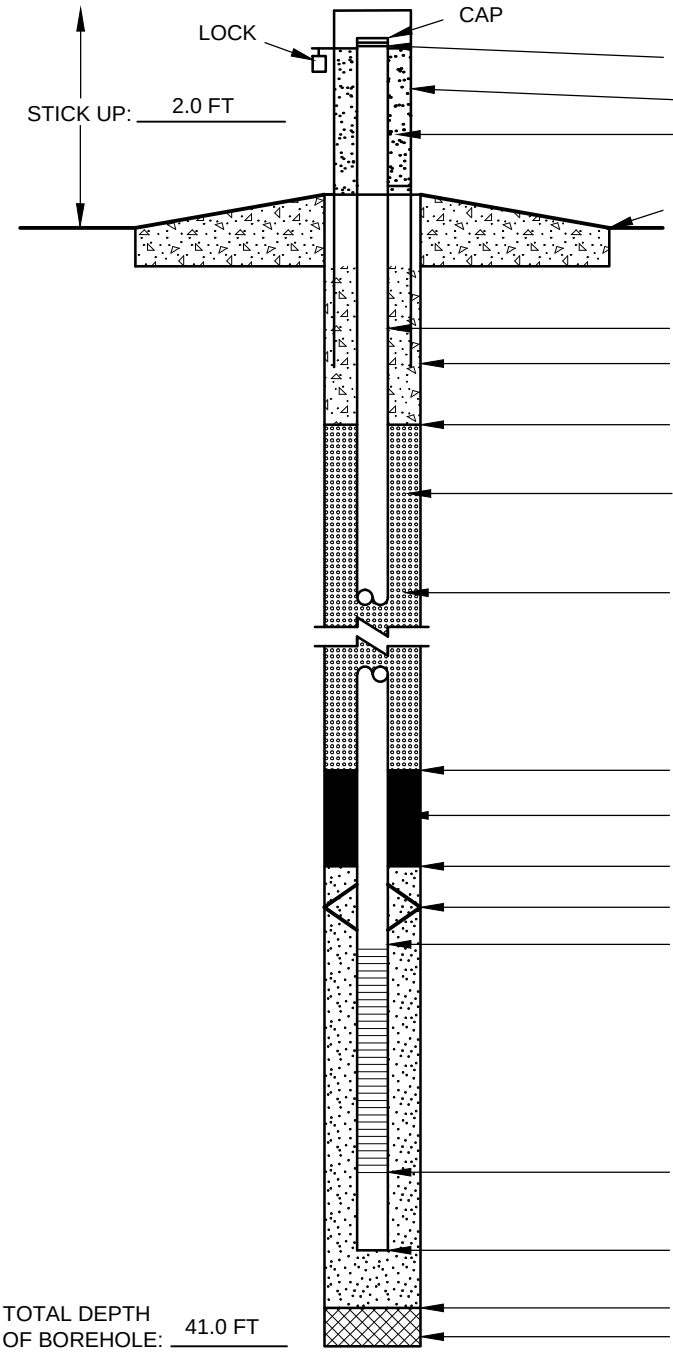
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-2S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-2S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 445.2 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1120332.8	EASTING: 879283.7
DRILLER: J. DRABEK	STATIC WATER LEVEL: 27.04 FT BTOC	COMPLETION DATE: 12/16/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



TOP OF CASING ELEVATION: 447.16 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 445.2 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 2 BAGS

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

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 22.0

TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 1 BAG

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 28.5 FINE: 27.0

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 30.6

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

AMOUNT OF SAND: COARSE: 4 BAGS FINE: $\frac{1}{3}$ BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 40.4

BOTTOM OF WELL DEPTH (ft. bgs): 40.8

BOTTOM OF FILTER PACK (ft. bgs): 40.8

TYPE AND AMOUNT OF BACKFILL: NONE

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

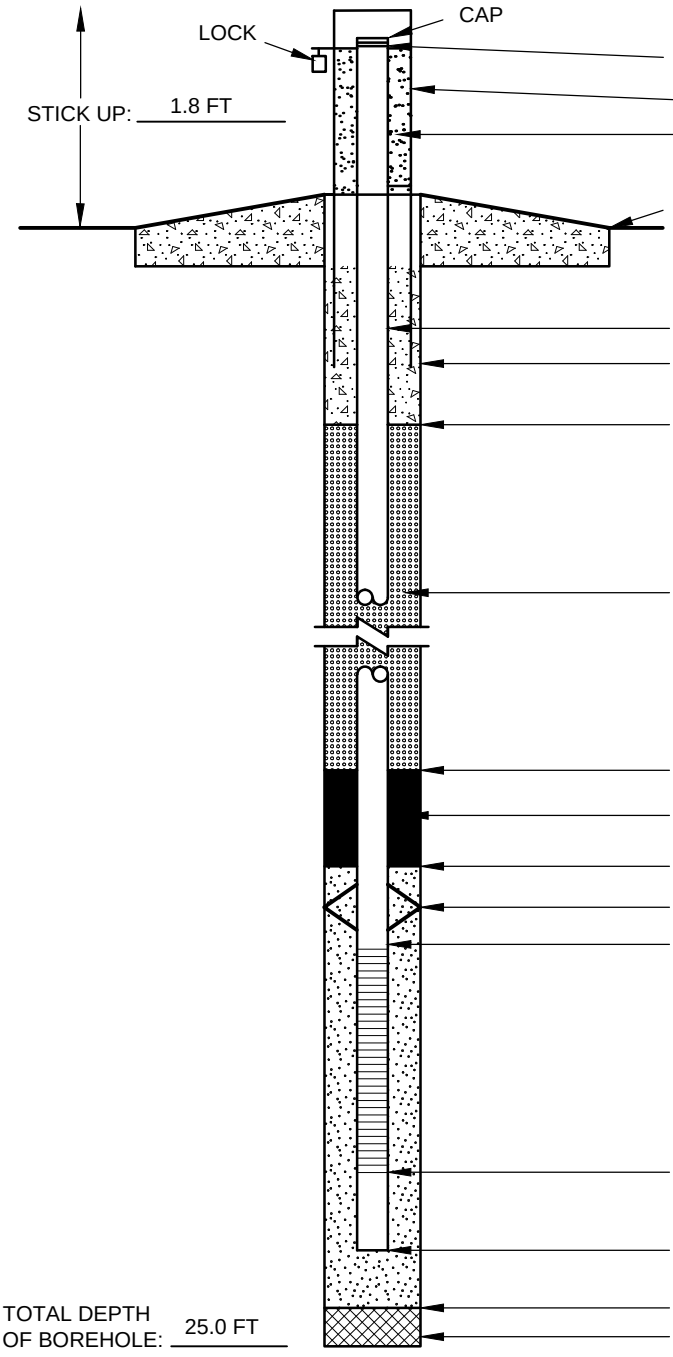
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-3S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-3S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 428.4 FT MSL	
GEOLOGIST: J. INGRAM	NORTHING: 1119348.8	EASTING: 878856.4
DRILLER: J. DRABEK	STATIC WATER LEVEL: 6.31 FT BTOC	COMPLETION DATE: 12/18/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



TOP OF CASING ELEVATION: 430.17 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 428.4 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: NONE

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 2 BAGS

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 12.2 FINE: 11.5

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 14.2

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

AMOUNT OF SAND: COARSE: $3\frac{1}{2}$ BAGS FINE: $\frac{1}{3}$ BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 24.0

BOTTOM OF WELL DEPTH (ft. bgs): 24.4

BOTTOM OF FILTER PACK (ft. bgs): 24.4

TYPE AND AMOUNT OF BACKFILL: 0.6 FT - NATURAL CAVE IN

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

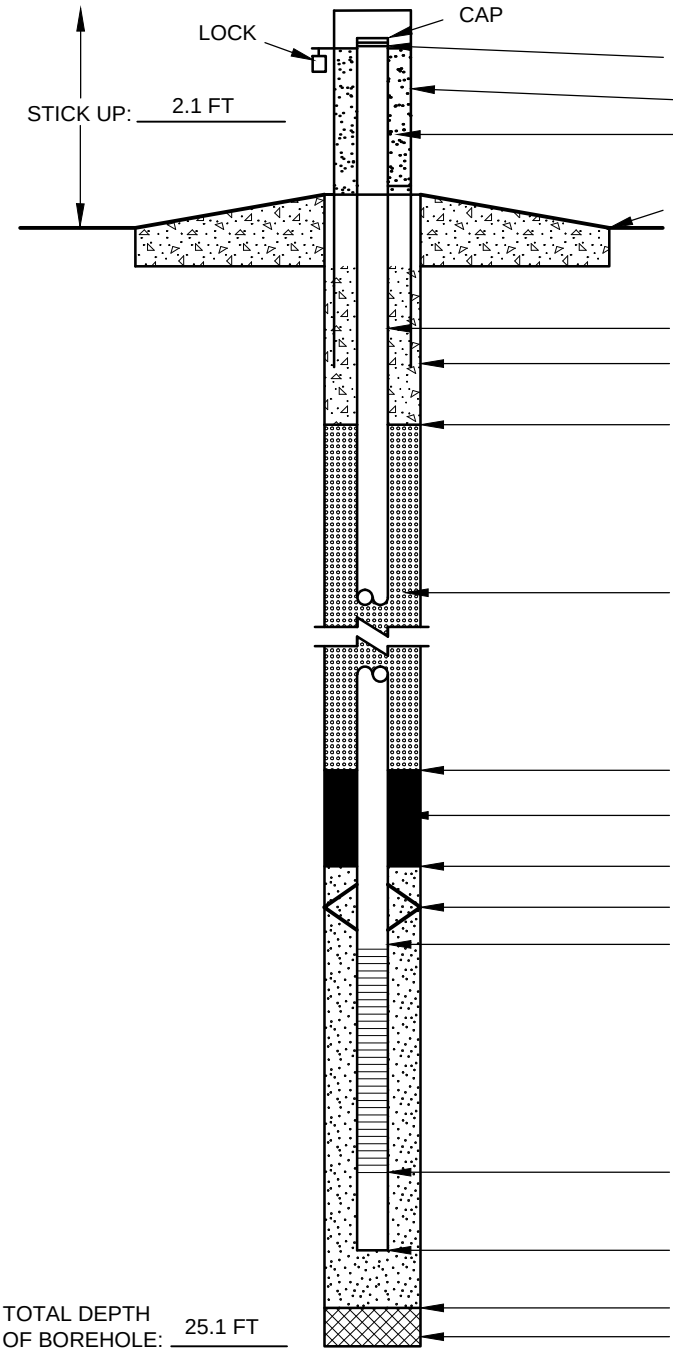
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-4S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-4S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 427.3 FT MSL	
GEOLOGIST: J. INGRAM	NORTHING: 1119226.6	EASTING: 879561.5
DRILLER: J. DRABEK	STATIC WATER LEVEL: 5.50 FT BTOC	COMPLETION DATE: 12/18/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



- TOP OF CASING ELEVATION: 429.40 FT MSL
- PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM
- PEA GRAVEL OR SAND
- GROUND SURFACE ELEVATION: 427.3 FT MSL
- DIAMETER OF RISER PIPE (in.): 2.0
- DIAMETER OF BOREHOLE (in.): 6.0
- CONCRETE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF ANNULAR SEAL: NONE
- TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 2 BAGS
- TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 12.5 FINE: 12.0
- CENTRALIZER (yes / no) - TYPE: NONE
- TOP OF SCREEN DEPTH (ft. bgs): 14.9
- TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC
- SCREEN SLOT SIZE (in.): 0.010 IN
- SIZE OF SAND PACK: COARSE: #1 FINE: #0
- AMOUNT OF SAND: COARSE: $3\frac{1}{2}$ BAGS FINE: $\frac{1}{3}$ BAG
- BOTTOM OF SCREEN DEPTH (ft. bgs): 24.7
- BOTTOM OF WELL DEPTH (ft. bgs): 25.1
- BOTTOM OF FILTER PACK (ft. bgs): 25.1
- TYPE AND AMOUNT OF BACKFILL: NONE

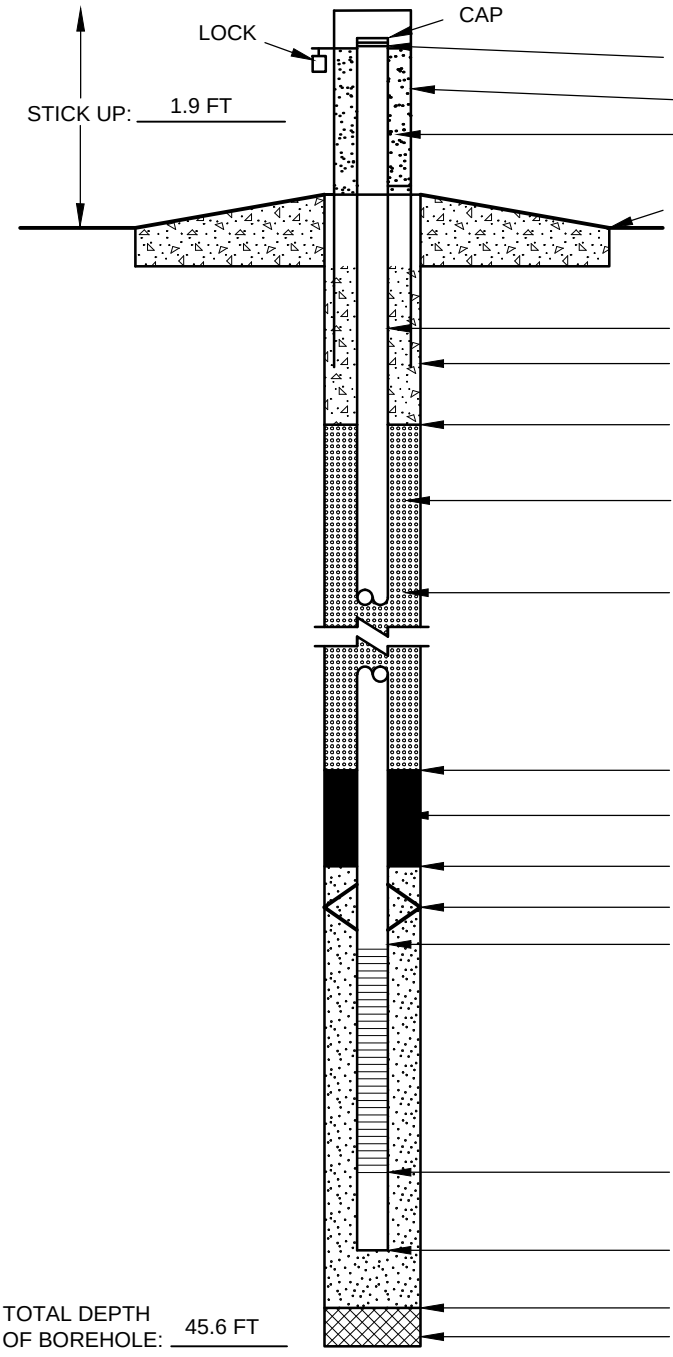
ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 50 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14,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

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

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-5S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-5S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 445.5 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1119250.6	EASTING: 880348.6
DRILLER: J. DRABEK	STATIC WATER LEVEL: 27.92 FT BTOC	COMPLETION DATE: 12/14/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



- TOP OF CASING ELEVATION: 447.36 FT MSL
- PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM
- PEA GRAVEL OR SAND
- GROUND SURFACE ELEVATION: 445.5 FT MSL
- DIAMETER OF RISER PIPE (in.): 2.0
- DIAMETER OF BOREHOLE (in.): 6.0
- CONCRETE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF ANNULAR SEAL: 3/8" BENTONITE CHIPS - 2 BAGS
- TYPE AND AMOUNT OF ANNULAR SEAL: HIGH SOLIDS BENTONITE 0.5 BAG
- TOP OF BENTONITE SEAL DEPTH (ft. bgs): 26.0
- TYPE AND AMOUNT OF BENTONITE SEAL: 3/8" BENTONITE CHIPS - 1 BAG
- TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 32.0 FINE: 31.0
- CENTRALIZER (yes / no) - TYPE: NONE
- TOP OF SCREEN DEPTH (ft. bgs): 35.4
- TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC
- SCREEN SLOT SIZE (in.): 0.010 IN
- SIZE OF SAND PACK: COARSE: #1 FINE: #0
- AMOUNT OF SAND: COARSE: 3 BAGS FINE: 1/3 BAG
- BOTTOM OF SCREEN DEPTH (ft. bgs): 45.2
- BOTTOM OF WELL DEPTH (ft. bgs): 45.6
- BOTTOM OF FILTER PACK (ft. bgs): 45.6
- TYPE AND AMOUNT OF BACKFILL: NONE

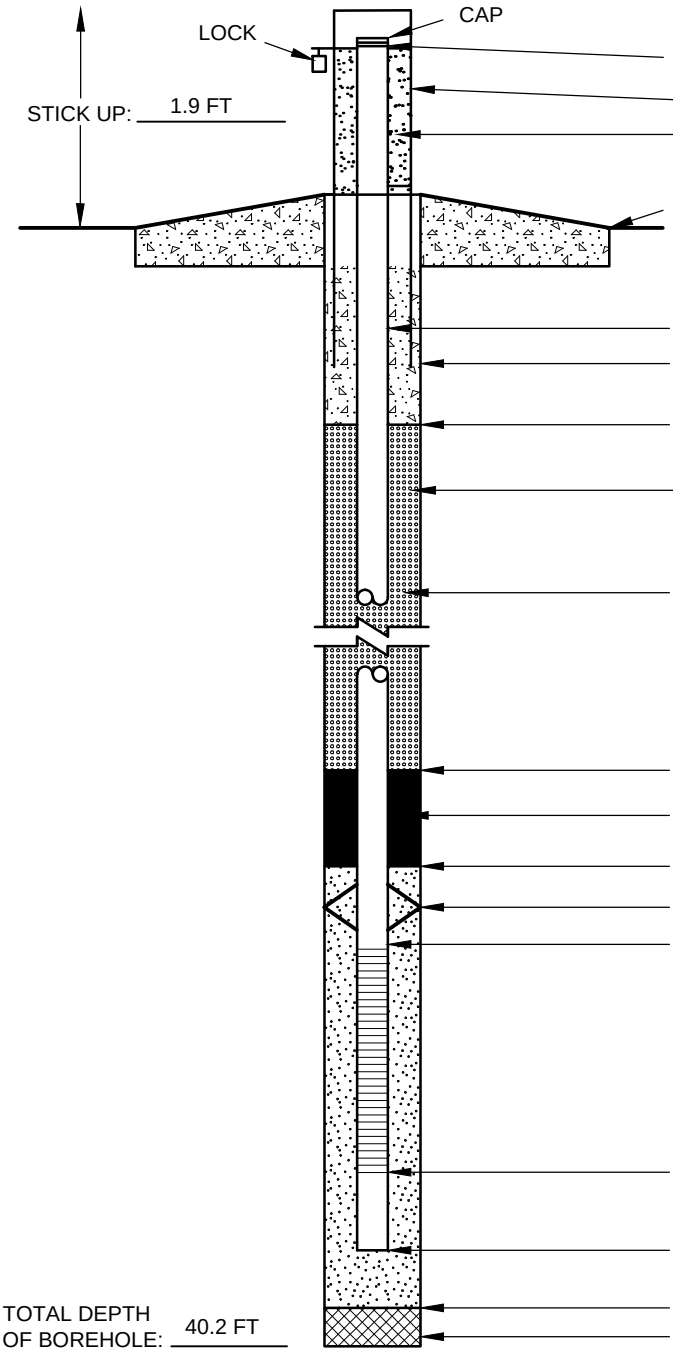
ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 100 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016. FT BTOR = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

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

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-6S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-6S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 444.1 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1119782.0	EASTING: 880867.8
DRILLER: J. DRABEK	STATIC WATER LEVEL: 21.70 FT BTOC	COMPLETION DATE: 12/14/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



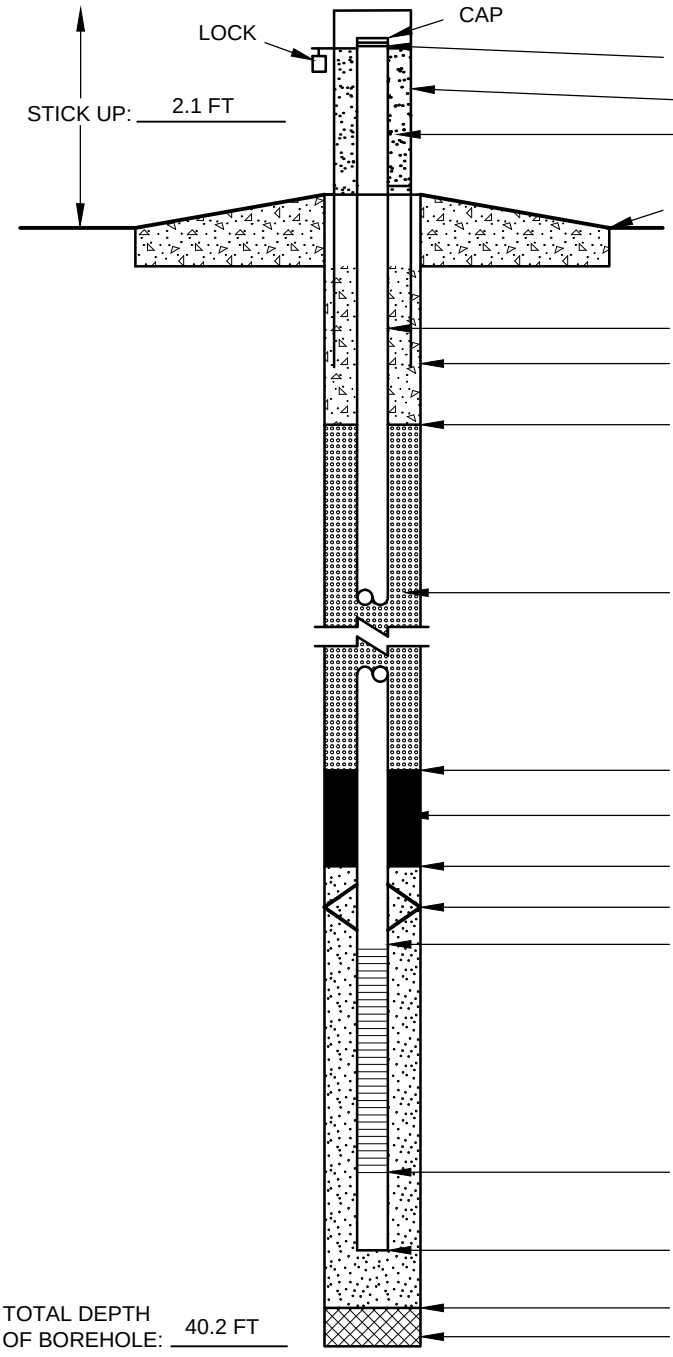
- TOP OF CASING ELEVATION: 446.00 FT MSL
- PROTECTIVE CASING (yes / no): yes — 4" X 5' ALUMINUM
- PEA GRAVEL OR SAND
- GROUND SURFACE ELEVATION: 444.1 FT MSL
- DIAMETER OF RISER PIPE (in.): 2.0
- DIAMETER OF BOREHOLE (in.): 6.0
- CONCRETE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF ANNULAR SEAL: 3/8" BENTONITE CHIPS - 1.5 BAGS
- TYPE AND AMOUNT OF ANNULAR SEAL: HIGH SOLIDS BENTONITE — 0.5 BAG
- TOP OF BENTONITE SEAL DEPTH (ft. bgs): 21.0
- TYPE AND AMOUNT OF BENTONITE SEAL: 3/8" BENTONITE CHIPS - 1 BAG
- TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 27.5 FINE: 26.5
- CENTRALIZER (yes / no) - TYPE: no — NONE
- TOP OF SCREEN DEPTH (ft. bgs): 30.0
- TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC
- SCREEN SLOT SIZE (in.): 0.010 IN
- SIZE OF SAND PACK: COARSE: #1 FINE: #0
- AMOUNT OF SAND: COARSE: 3 1/3 BAGS FINE: 1/3 BAG
- BOTTOM OF SCREEN DEPTH (ft. bgs): 39.8
- BOTTOM OF WELL DEPTH (ft. bgs): 40.2
- BOTTOM OF FILTER PACK (ft. bgs): 40.2
- TYPE AND AMOUNT OF BACKFILL: NONE

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 75 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016. FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

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

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-7S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-7S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 442.2 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1120261.0	EASTING: 88650.0
DRILLER: J. DRABEK	STATIC WATER LEVEL: 20.78 FT BTOC	COMPLETION DATE: 12/14/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



TOP OF CASING ELEVATION: 444.26 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 442.2 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: NONE

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 5 BAGS

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 27.0 FINE: 26.0

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 30.0

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

AMOUNT OF SAND: COARSE: $3\frac{1}{2}$ BAGS FINE: $\frac{1}{3}$ BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 39.8

BOTTOM OF WELL DEPTH (ft. bgs): 40.2

BOTTOM OF FILTER PACK (ft. bgs): 40.2

TYPE AND AMOUNT OF BACKFILL: NONE

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 75 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016. FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

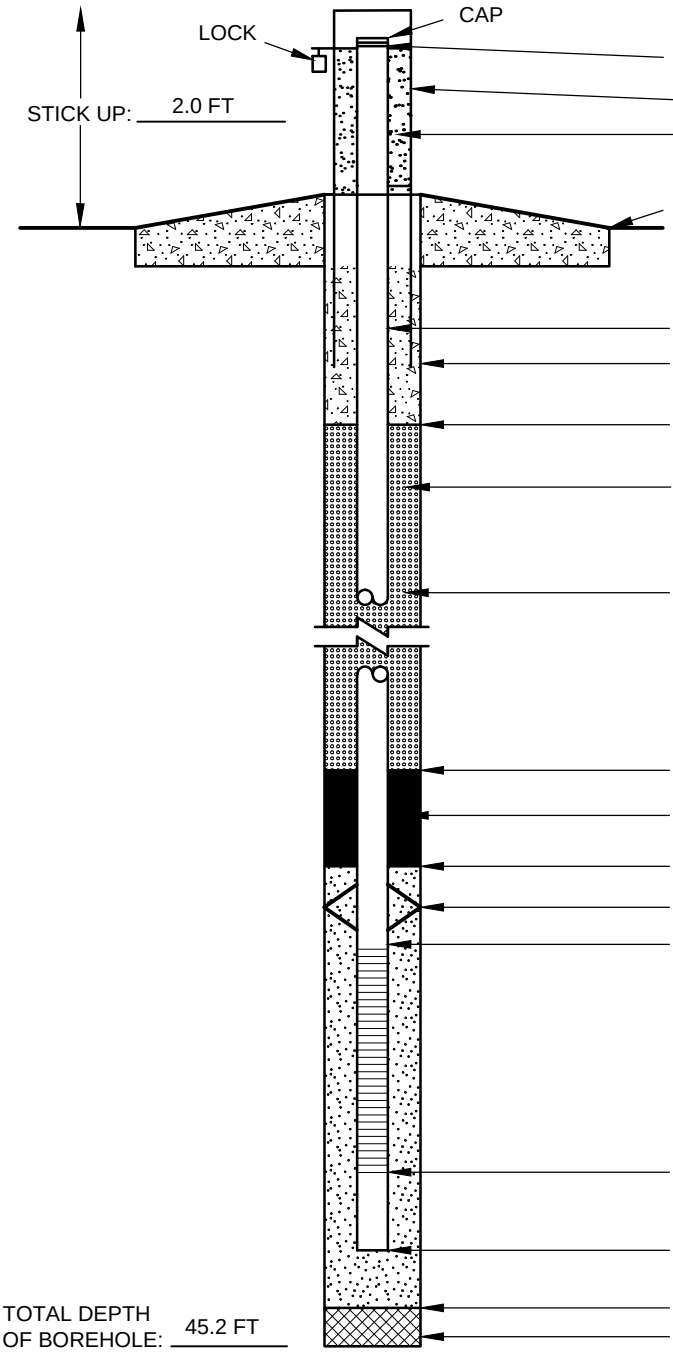
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-8S

PROJECT NAME: AMEREN CCR GW MONITORING		PROJECT NUMBER: 153-1406.0003B
SITE NAME: SIOUX ENERGY CENTER		LOCATION: LMW-8S
CLIENT: AMEREN MISSOURI		SURFACE ELEVATION: 444.8 FT MSL
GEOLOGIST: J. SUOZZI	NORTHING: 1121024.3	EASTING: 880328.8
DRILLER: J. DRABEK	STATIC WATER LEVEL: 23.24 FT BTOC	COMPLETION DATE: 12/15/2015
DRILLING COMPANY: CASCADE		DRILLING METHODS: SONIC



TOP OF CASING ELEVATION: 446.80 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 444.8 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: 3/8" BENTONITE CHIPS - 1.75 BAGS

TYPE AND AMOUNT OF ANNULAR SEAL: HIGH SOLIDS BENTONITE 1.6 BAGS

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 27.0

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

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 32.5 FINE: 31.5

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 35.0

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

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

BOTTOM OF SCREEN DEPTH (ft. bgs): 44.8

BOTTOM OF WELL DEPTH (ft. bgs): 45.2

BOTTOM OF FILTER PACK (ft. bgs): 45.2

TYPE AND AMOUNT OF BACKFILL: NONE

TOTAL DEPTH OF BOREHOLE: 45.2 FT

ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL. 100 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14, 2016. FT BTOC = FEET BELOW TOP OF CASING. SAND AND BENTONITE BAGS WEIGH 50 LBS EACH.

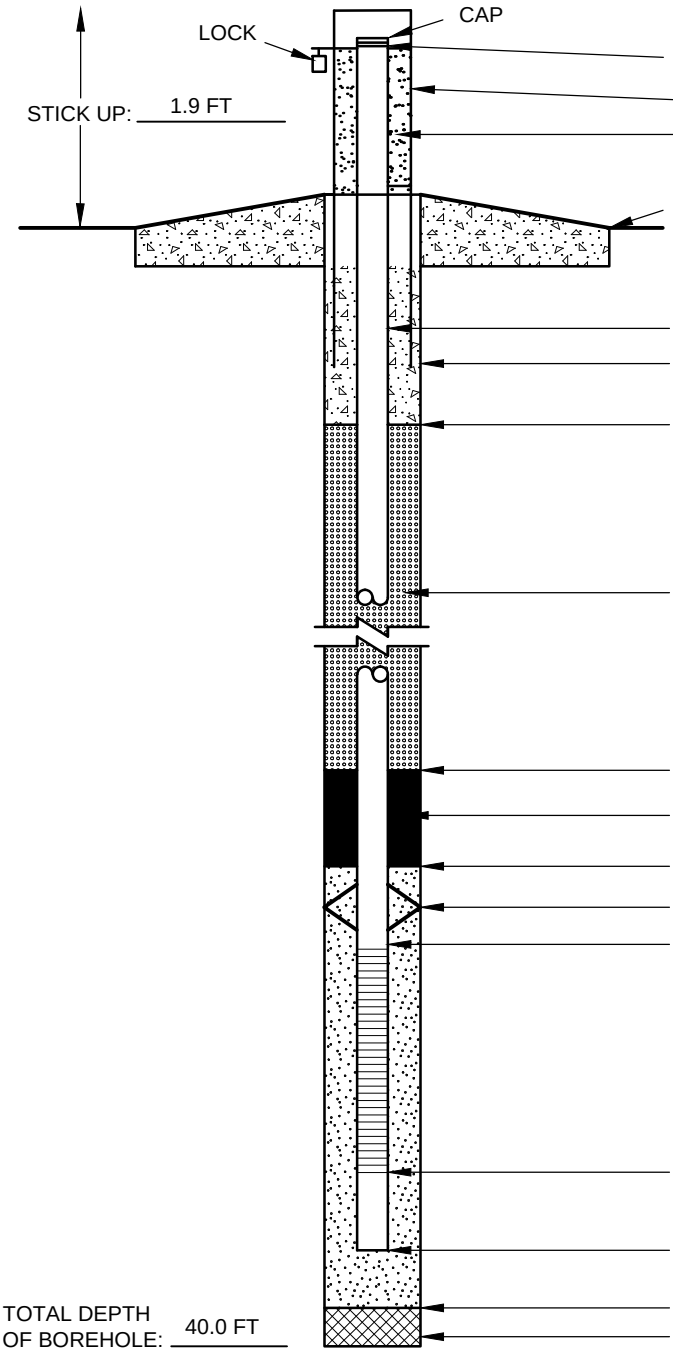
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG LMW-9S

PROJECT NAME: AMEREN CCR GW MONITORING	PROJECT NUMBER: 153-1406.0003B	
SITE NAME: SIOUX ENERGY CENTER	LOCATION: LMW-9S	
CLIENT: AMEREN MISSOURI	SURFACE ELEVATION: 443.7 FT MSL	
GEOLOGIST: J. SUOZZI	NORTHING: 1121905.9	EASTING: 879849.3
DRILLER: J. DRABEK	STATIC WATER LEVEL: 23.59 FT BTOC	COMPLETION DATE: 12/18/2015
DRILLING COMPANY: CASCADE	DRILLING METHODS: SONIC	



TOP OF CASING ELEVATION: 445.57 FT MSL

PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM

PEA GRAVEL OR SAND

GROUND SURFACE ELEVATION: 443.7 FT MSL

DIAMETER OF RISER PIPE (in.): 2.0

DIAMETER OF BOREHOLE (in.): 6.0

CONCRETE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: NONE

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5

TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 3 BAGS

TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 27.5 FINE: 26.5

CENTRALIZER (yes / no) - TYPE: NONE

TOP OF SCREEN DEPTH (ft. bgs): 29.5

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

SCREEN SLOT SIZE (in.): 0.010 IN

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

AMOUNT OF SAND: COARSE: 3 BAGS FINE: $\frac{1}{3}$ BAG

BOTTOM OF SCREEN DEPTH (ft. bgs): 39.3

BOTTOM OF WELL DEPTH (ft. bgs): 39.7

BOTTOM OF FILTER PACK (ft. bgs): 39.7

TYPE AND AMOUNT OF BACKFILL: 0.3 FT - NATURAL CAVE IN

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

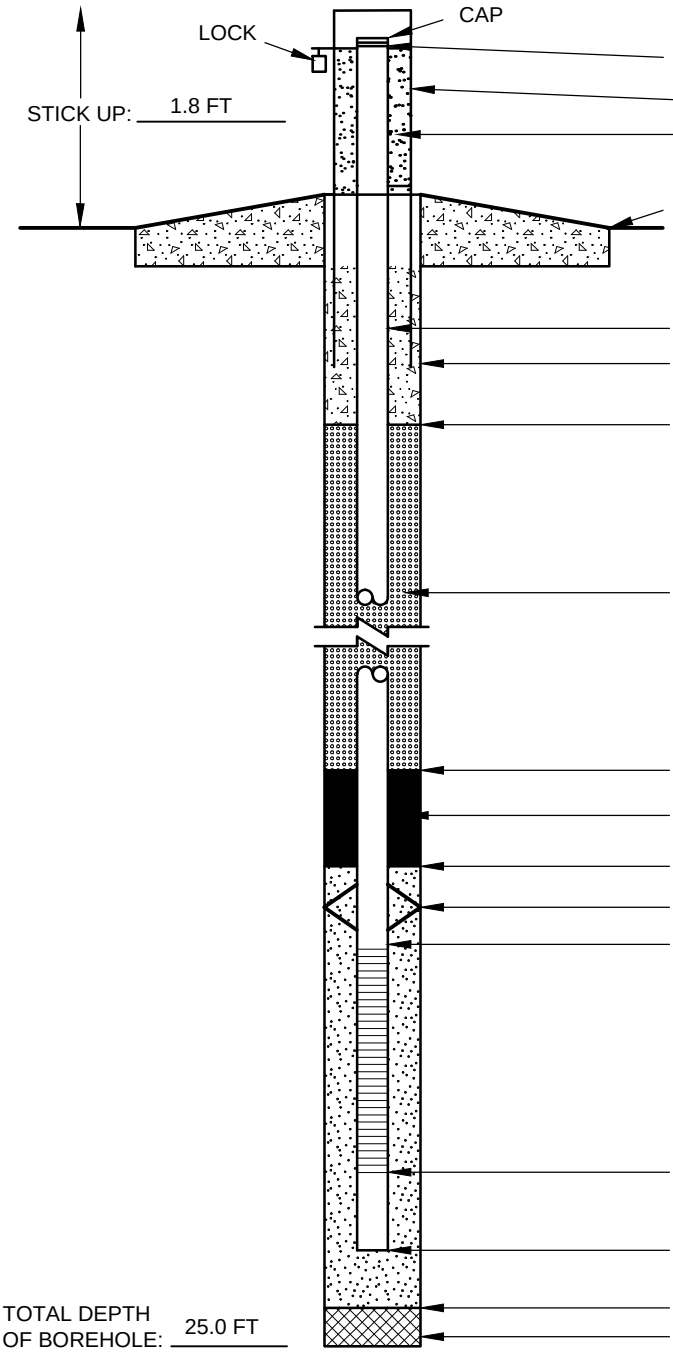
CHECKED BY: J. INGRAM

DATE CHECKED: 4/20/2016

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG BMW-1S

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



- TOP OF CASING ELEVATION: 427.77 FT MSL
- PROTECTIVE CASING (yes / no): 4" X 5' ALUMINUM
- PEA GRAVEL OR SAND
- GROUND SURFACE ELEVATION: 426.0 FT MSL
- DIAMETER OF RISER PIPE (in.): 2.0
- DIAMETER OF BOREHOLE (in.): 6.0
- CONCRETE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF ANNULAR SEAL: NONE
- TOP OF BENTONITE SEAL DEPTH (ft. bgs): 2.5
- TYPE AND AMOUNT OF BENTONITE SEAL: $\frac{3}{8}$" BENTONITE CHIPS - 2 BAGS
- TOP OF SAND PACK DEPTH (ft. bgs): COARSE: 12.5 FINE: 12.0
- CENTRALIZER (yes / no) - TYPE: NONE
- TOP OF SCREEN DEPTH (ft. bgs): 14.0
- TYPE OF SCREEN: 2" X 9.8' SCHEDULE 40 PVC
- SCREEN SLOT SIZE (in.): 0.010 IN
- SIZE OF SAND PACK: COARSE: #1 FINE: #0
- AMOUNT OF SAND: COARSE: 3.5 BAGS FINE: $\frac{1}{3}$ BAG
- BOTTOM OF SCREEN DEPTH (ft. bgs): 23.8
- BOTTOM OF WELL DEPTH (ft. bgs): 24.2
- BOTTOM OF FILTER PACK (ft. bgs): 24.2
- TYPE AND AMOUNT OF BACKFILL: 0.8 FT - NATURAL CAVE IN

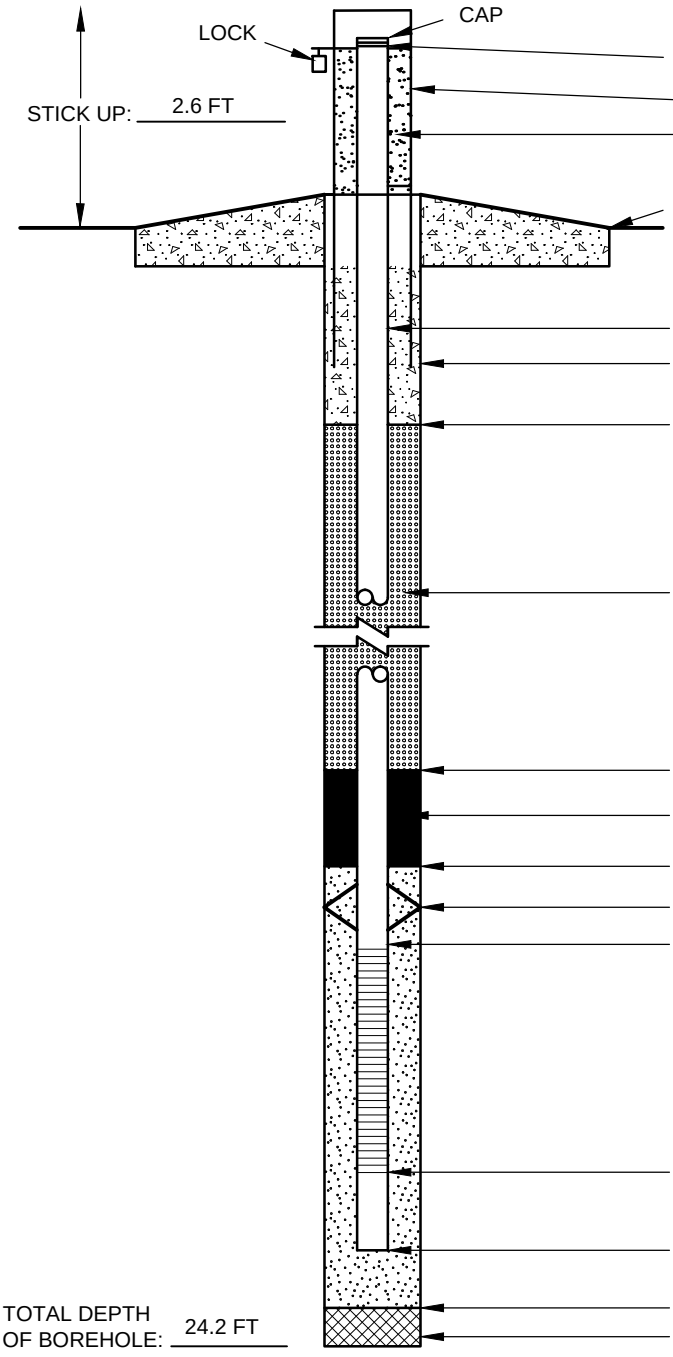
ADDITIONAL NOTES: FT BGS = FEET BELOW GROUND SURFACE. FT MSL = FEET ABOVE MEAN SEA LEVEL.
50 GALLONS OF H2O USED DURING DRILLING. HORIZONTAL DATUM: STATE PLANE COORDINATES NAD83 US SURVEY FEET (2000) MISSOURI EAST ZONE. VERTICAL DATUM: NAVD88. WELL SURVEYED BY ZAHNER AND ASSOCIATES, INC ON JANUARY 14,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

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

PREPARED BY: J. SUOZZI

ABOVE GROUND MONITORING WELL CONSTRUCTION LOG BMW-3S

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



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

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

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

APPENDIX B – LABORATORY ANALYTICAL DATA

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

January 02, 2018

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on March 19, 2016. 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, 1/2/18: Revision

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
Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60215292001	**S-LMW-1S**	Water	03/17/16 12:55	03/19/16 05:55
60215292002	**S-LMW-2S**	Water	03/16/16 16:15	03/19/16 05:55
60215292003	**S-LMW-3S**	Water	03/17/16 10:38	03/19/16 05:55
60215292004	**S-LMW-4S**	Water	03/17/16 08:35	03/19/16 05:55
60215292005	**S-LMW-5S**	Water	03/17/16 09:02	03/19/16 05:55
60215292006	**S-LMW-6S**	Water	03/17/16 10:00	03/19/16 05:55
60215292007	**S-LMW-8S**	Water	03/17/16 12:55	03/19/16 05:55
60215292008	**S-LMW-7S**	Water	03/17/16 11:02	03/19/16 05:55
60215292009	**S-LMW-9S**	Water	03/17/16 15:25	03/19/16 05:55
60215292010	**S-BMW-1S**	Water	03/16/16 09:03	03/19/16 05:55
60215292012	**S-LMW-DUP-1**	Water	03/17/16 08:00	03/19/16 05:55
60215292013	**S-LMW-DUP-2**	Water	03/17/16 08:00	03/19/16 05:55
60215292014	**S-LMW-FB-1**	Water	03/17/16 08:45	03/19/16 05:55
60215292015	**S-LMW-FB-2**	Water	03/17/16 12:37	03/19/16 05:55
60215292016	**S-LMW-4S MS**	Water	03/17/16 08:35	03/19/16 05:55
60215292017	**S-LMW-4S MSD**	Water	03/17/16 08:35	03/19/16 05:55

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60215292001	**S-LMW-1S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292002	**S-LMW-2S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292003	**S-LMW-3S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292004	**S-LMW-4S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292005	**S-LMW-5S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292006	**S-LMW-6S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292007	**S-LMW-8S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292008	**S-LMW-7S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292009	**S-LMW-9S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292010	**S-BMW-1S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292012	**S-LMW-DUP-1**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292013	**S-LMW-DUP-2**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292014	**S-LMW-FB-1**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60215292015	**S-LMW-FB-2**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	LJS	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	RAB	3	PASI-K
60215292016	**S-LMW-4S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60215292017	**S-LMW-4S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-1S **Lab ID: 60215292001** Collected: 03/17/16 12:55 Received: 03/19/16 05:55 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								
Barium	**148**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:15	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:15	7440-41-7	
Boron	**1940**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:15	7440-42-8	
Calcium	**88600**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:15	7440-70-2	M1
Cobalt	**2.8J**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:15	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:15	7439-92-1	
Lithium	**16.9**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:15	7439-93-2	
Molybdenum	**72.0**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:15	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.35J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 16:53	7440-36-0	B
Arsenic	**2.3**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 16:53	7440-38-2	
Cadmium	**0.065J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 16:53	7440-43-9	B
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 16:53	7440-47-3	
Selenium	**0.24J**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 16:53	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 16:53	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 14:58	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**413**	mg/L	5.0	5.0	1		03/23/16 08:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.1**	mg/L	2.0	1.0	2		03/22/16 11:05	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.073	1		03/21/16 21:10	16984-48-8	
Sulfate	**114**	mg/L	10.0	2.5	10		03/22/16 10:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-2S **Lab ID: 60215292002** Collected: 03/16/16 16:15 Received: 03/19/16 05:55 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								
Barium	**131**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:23	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:23	7440-41-7	
Boron	**13300**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:23	7440-42-8	
Calcium	**171000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:23	7440-70-2	
Cobalt	**5.0**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:23	7440-48-4	
Lead	**4.4J**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:23	7439-92-1	
Lithium	**28.6**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:23	7439-93-2	
Molybdenum	**1400**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:23	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.092J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 16:57	7440-36-0	B
Arsenic	**2.1**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 16:57	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 16:57	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 16:57	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 16:57	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 16:57	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**945**	mg/L	5.0	5.0	1		03/22/16 10:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		03/23/16 10:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**77.2**	mg/L	10.0	5.0	10		03/22/16 11:19	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.073	1		03/21/16 21:39	16984-48-8	
Sulfate	**338**	mg/L	20.0	5.0	20		03/21/16 21:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-3S **Lab ID: 60215292003** Collected: 03/17/16 10:38 Received: 03/19/16 05:55 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								
Barium	**137**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:26	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:26	7440-41-7	
Boron	**303**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:26	7440-42-8	
Calcium	**143000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:26	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:26	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:26	7439-92-1	
Lithium	**21.3**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:26	7439-93-2	
Molybdenum	**2.0J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:26	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.14J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:06	7440-36-0	B
Arsenic	**0.49J**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:06	7440-38-2	
Cadmium	**0.064J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:06	7440-43-9	B
Chromium	**0.94J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:06	7440-47-3	
Selenium	**2.5**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:06	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:06	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:03	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**536**	mg/L	5.0	5.0	1		03/23/16 08:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**26.4**	mg/L	2.0	1.0	2		03/22/16 11:33	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.073	1		03/21/16 22:08	16984-48-8	
Sulfate	**39.2**	mg/L	5.0	1.2	5		03/22/16 11:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-4S **Lab ID: 60215292004** Collected: 03/17/16 08:35 Received: 03/19/16 05:55 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								
Barium	**226**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:28	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:28	7440-41-7	
Boron	**203**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:28	7440-42-8	
Calcium	**152000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:28	7440-70-2	M1
Cobalt	**0.78J**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:28	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:28	7439-92-1	
Lithium	**21.4**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:28	7439-93-2	
Molybdenum	**3.6J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:28	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.15J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:19	7440-36-0	B
Arsenic	**0.72J**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:19	7440-38-2	
Cadmium	**0.095J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:19	7440-43-9	B
Chromium	**0.64J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:19	7440-47-3	
Selenium	**6.3**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:19	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:19	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**468**	mg/L	5.0	5.0	1		03/23/16 08:25		D6
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		03/23/16 10:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.0**	mg/L	1.0	0.50	1		03/21/16 23:49	16887-00-6	
Fluoride	**0.12J**	mg/L	0.20	0.073	1		03/21/16 23:49	16984-48-8	
Sulfate	**30.0**	mg/L	2.0	0.50	2		03/22/16 12:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-5S **Lab ID: 60215292005** Collected: 03/17/16 09:02 Received: 03/19/16 05:55 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								
Barium	**74.8**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:34	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:34	7440-41-7	
Boron	**11900**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:34	7440-42-8	
Calcium	**292000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:34	7440-70-2	
Cobalt	**1.6J**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:34	7440-48-4	
Lead	**3.9J**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:34	7439-92-1	
Lithium	**62.3**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:34	7439-93-2	
Molybdenum	**318**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:34	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:33	7440-36-0	B
Arsenic	**5.9**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:33	7440-38-2	
Cadmium	**0.18J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:33	7440-43-9	B
Chromium	**0.34J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:33	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:33	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:33	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:12	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1610**	mg/L	5.0	5.0	1		03/23/16 08:26		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**32.9**	mg/L	2.0	1.0	2		03/22/16 12:45	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.073	1		03/22/16 00:32	16984-48-8	
Sulfate	**842**	mg/L	100	24.8	100		03/22/16 13:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-6S **Lab ID: 60215292006** Collected: 03/17/16 10:00 Received: 03/19/16 05:55 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								
Barium	**45.4**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:37	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:37	7440-41-7	
Boron	**13300**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:37	7440-42-8	
Calcium	**312000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:37	7440-70-2	
Cobalt	**6.1**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:37	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:37	7439-92-1	
Lithium	**25.1**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:37	7439-93-2	
Molybdenum	**0.88J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:37	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.23J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:37	7440-36-0	B
Arsenic	**1.1**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:37	7440-38-2	
Cadmium	**0.50**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:37	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:37	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:37	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:14	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1750**	mg/L	5.0	5.0	1		03/23/16 08:26		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.4**	mg/L	1.0	0.50	1		03/22/16 01:01	16887-00-6	
Fluoride	**0.18J**	mg/L	0.20	0.073	1		03/22/16 01:01	16984-48-8	
Sulfate	**991**	mg/L	100	24.8	100		03/22/16 13:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-8S **Lab ID: 60215292007** Collected: 03/17/16 12:55 Received: 03/19/16 05:55 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								
Barium	**114**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:39	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:39	7440-41-7	
Boron	**5780**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:39	7440-42-8	
Calcium	**152000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:39	7440-70-2	
Cobalt	**7.6**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:39	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:39	7439-92-1	
Lithium	**23.4**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:39	7439-93-2	
Molybdenum	**82.7**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:39	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.094J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:41	7440-36-0	B
Arsenic	**2.1**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:41	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:41	7440-43-9	
Chromium	**0.40J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:41	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:41	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:41	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:20	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**807**	mg/L	5.0	5.0	1		03/23/16 08:26		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.3**	mg/L	5.0	2.5	5		03/22/16 13:57	16887-00-6	
Fluoride	**0.92**	mg/L	0.20	0.073	1		03/22/16 01:30	16984-48-8	
Sulfate	**396**	mg/L	20.0	5.0	20		03/22/16 01:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-7S **Lab ID: 60215292008** Collected: 03/17/16 11:02 Received: 03/19/16 05:55 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								
Barium	**119**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:41	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:41	7440-41-7	
Boron	**1700**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:41	7440-42-8	
Calcium	**206000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:41	7440-70-2	
Cobalt	**6.5**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:41	7440-48-4	
Lead	**2.5J**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:41	7439-92-1	
Lithium	**21.2**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:41	7439-93-2	
Molybdenum	**7.8J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:41	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:46	7440-36-0	B
Arsenic	**0.38J**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:46	7440-38-2	
Cadmium	**0.28J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:46	7440-43-9	B
Chromium	**0.38J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:46	7440-47-3	
Selenium	**1.1**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:46	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**940**	mg/L	5.0	5.0	1		03/23/16 08:27		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.0**	mg/L	2.0	1.0	2		03/22/16 14:12	16887-00-6	
Fluoride	**0.20J**	mg/L	0.20	0.073	1		03/22/16 02:42	16984-48-8	
Sulfate	**337**	mg/L	20.0	5.0	20		03/22/16 01:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-9S **Lab ID: 60215292009** Collected: 03/17/16 15:25 Received: 03/19/16 05:55 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								
Barium	**94.5**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:48	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:48	7440-41-7	
Boron	**1140**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:48	7440-42-8	
Calcium	**214000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:48	7440-70-2	
Cobalt	**12.2**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:48	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:48	7439-92-1	
Lithium	**44.6**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:48	7439-93-2	
Molybdenum	**8.9J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:48	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:50	7440-36-0	
Arsenic	**5.6**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:50	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:50	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:50	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:50	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:50	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1040**	mg/L	5.0	5.0	1		03/23/16 08:27		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.5**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**88.6**	mg/L	20.0	10.0	20		03/22/16 03:11	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.073	1		03/22/16 02:56	16984-48-8	
Sulfate	**316**	mg/L	20.0	5.0	20		03/22/16 03:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-BMW-1S **Lab ID: 60215292010** Collected: 03/16/16 09:03 Received: 03/19/16 05:55 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								
Barium	**141**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:50	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:50	7440-41-7	
Boron	**78.1J**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:50	7440-42-8	
Calcium	**150000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:50	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:50	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:50	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:50	7439-93-2	
Molybdenum	**2.1J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:50	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.080J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 17:55	7440-36-0	B
Arsenic	**0.99J**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 17:55	7440-38-2	
Cadmium	**0.11J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 17:55	7440-43-9	B
Chromium	**0.40J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 17:55	7440-47-3	
Selenium	**0.74J**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 17:55	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 17:55	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**533**	mg/L	5.0	5.0	1		03/22/16 10:33		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		03/22/16 16:15		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.0**	mg/L	1.0	0.50	1		03/22/16 03:25	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.073	1		03/22/16 03:25	16984-48-8	
Sulfate	**27.8**	mg/L	2.0	0.50	2		03/22/16 14:26	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-DUP-1 **Lab ID: 60215292012** Collected: 03/17/16 08:00 Received: 03/19/16 05:55 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								
Barium	**133**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:55	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:55	7440-41-7	
Boron	**287**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:55	7440-42-8	
Calcium	**143000**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:55	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:55	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:55	7439-92-1	
Lithium	**19.9**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:55	7439-93-2	
Molybdenum	**1.0J**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:55	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.14J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 18:12	7440-36-0	B
Arsenic	**0.50J**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 18:12	7440-38-2	
Cadmium	**0.093J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 18:12	7440-43-9	B
Chromium	**0.82J**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 18:12	7440-47-3	
Selenium	**2.7**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 18:12	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 18:12	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**555**	mg/L	5.0	5.0	1		03/23/16 08:27		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		03/23/16 10:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**28.1**	mg/L	2.0	1.0	2		03/22/16 15:09	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.073	1		03/22/16 05:35	16984-48-8	
Sulfate	**40.1**	mg/L	5.0	1.2	5		03/22/16 15:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-DUP-2 **Lab ID: 60215292013** Collected: 03/17/16 08:00 Received: 03/19/16 05:55 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								
Barium	**141**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 15:57	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 15:57	7440-41-7	
Boron	**1860**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 15:57	7440-42-8	
Calcium	**85400**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 15:57	7440-70-2	
Cobalt	**2.7J**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 15:57	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 15:57	7439-92-1	
Lithium	**14.5**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 15:57	7439-93-2	
Molybdenum	**66.8**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 15:57	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.36J**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 18:17	7440-36-0	B
Arsenic	**2.2**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 18:17	7440-38-2	
Cadmium	**0.037J**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 18:17	7440-43-9	B
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 18:17	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 18:17	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 18:17	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:34	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**402**	mg/L	5.0	5.0	1		03/23/16 08:28		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.0**	Std. Units	0.10	0.10	1		03/23/16 10:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.8**	mg/L	2.0	1.0	2		03/22/16 15:38	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.073	1		03/22/16 05:49	16984-48-8	
Sulfate	**114**	mg/L	20.0	5.0	20		03/22/16 06:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-FB-1 **Lab ID: 60215292014** Collected: 03/17/16 08:45 Received: 03/19/16 05:55 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 16:00	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 16:00	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 16:00	7440-42-8	
Calcium	**50.0J**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 16:00	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 16:00	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 16:00	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 16:00	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 16:00	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 18:21	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 18:21	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 18:21	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 18:21	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 18:21	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 18:21	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		03/23/16 08:28		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.5**	Std. Units	0.10	0.10	1		03/23/16 10:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		03/22/16 06:18	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		03/22/16 06:18	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		03/22/16 06:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-FB-2 **Lab ID: 60215292015** Collected: 03/17/16 12:37 Received: 03/19/16 05:55 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	03/22/16 13:30	03/23/16 16:02	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	03/22/16 13:30	03/23/16 16:02	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	03/22/16 13:30	03/23/16 16:02	7440-42-8	
Calcium	**25.9J**	ug/L	100	8.1	1	03/22/16 13:30	03/23/16 16:02	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	03/22/16 13:30	03/23/16 16:02	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	03/22/16 13:30	03/23/16 16:02	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	03/22/16 13:30	03/23/16 16:02	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	03/22/16 13:30	03/23/16 16:02	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	03/22/16 13:30	03/23/16 18:25	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	03/22/16 13:30	03/23/16 18:25	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	03/22/16 13:30	03/23/16 18:25	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	03/22/16 13:30	03/23/16 18:25	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	03/22/16 13:30	03/23/16 18:25	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	03/22/16 13:30	03/23/16 18:25	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	04/01/16 10:45	04/01/16 15:38	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		03/23/16 08:29		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.4**	Std. Units	0.10	0.10	1		04/03/16 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		03/22/16 06:32	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		03/22/16 06:32	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		03/22/16 06:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 424740 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

METHOD BLANK: 1734330 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	04/01/16 14:54	

LABORATORY CONTROL SAMPLE: 1734331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1734332 1734333

Parameter	Units	60215292004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.0	5.0	100	100	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423334 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

METHOD BLANK: 1728583 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	03/23/16 15:10	
Beryllium	ug/L	<0.26	1.0	0.26	03/23/16 15:10	
Boron	ug/L	<50.0	100	50.0	03/23/16 15:10	
Calcium	ug/L	38.0J	100	8.1	03/24/16 10:43	
Cobalt	ug/L	<0.72	5.0	0.72	03/23/16 15:10	
Lead	ug/L	<2.5	5.0	2.5	03/23/16 15:10	
Lithium	ug/L	<4.9	10.0	4.9	03/23/16 15:10	
Molybdenum	ug/L	<0.52	20.0	0.52	03/23/16 15:10	

LABORATORY CONTROL SAMPLE: 1728584

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1030	103	85-115	
Beryllium	ug/L	1000	1010	101	85-115	
Boron	ug/L	1000	1040	104	85-115	
Calcium	ug/L	10000	10100	101	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Lead	ug/L	1000	1010	101	85-115	
Lithium	ug/L	1000	980	98	85-115	
Molybdenum	ug/L	1000	1080	108	85-115	

MATRIX SPIKE SAMPLE: 1728585

Parameter	Units	60215292001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	148	1000	1170	102	70-130	
Beryllium	ug/L	<0.26	1000	997	100	70-130	
Boron	ug/L	1940	1000	2890	95	70-130	
Calcium	ug/L	88600	10000	94700	61	70-130	M1
Cobalt	ug/L	2.8J	1000	1000	100	70-130	
Lead	ug/L	<2.5	1000	1010	101	70-130	
Lithium	ug/L	16.9	1000	1020	100	70-130	
Molybdenum	ug/L	72.0	1000	1140	107	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1728586 1728587

Parameter	Units	60215292004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	226	1000	1000	1260	1250	103	102	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	1010	998	101	100	70-130	1	20	
Boron	ug/L	203	1000	1000	1250	1220	105	102	70-130	2	20	
Calcium	ug/L	152000	10000	10000	157000	157000	54	54	70-130	0	20	M1
Cobalt	ug/L	0.78J	1000	1000	1020	995	101	99	70-130	2	20	
Lead	ug/L	<2.5	1000	1000	1020	1000	101	100	70-130	1	20	
Lithium	ug/L	21.4	1000	1000	1060	1030	104	101	70-130	3	20	
Molybdenum	ug/L	3.6J	1000	1000	1100	1070	109	107	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423335 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

METHOD BLANK: 1728588 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	0.061J	1.0	0.058	03/23/16 16:49	
Arsenic	ug/L	<0.10	1.0	0.10	03/23/16 16:49	
Cadmium	ug/L	0.032J	0.50	0.029	03/23/16 16:49	
Chromium	ug/L	<0.34	1.0	0.34	03/23/16 16:49	
Selenium	ug/L	<0.18	1.0	0.18	03/23/16 16:49	
Thallium	ug/L	<0.50	1.0	0.50	03/23/16 16:49	

LABORATORY CONTROL SAMPLE: 1728589

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	42.3	106	85-115	
Arsenic	ug/L	40	41.4	103	85-115	
Cadmium	ug/L	40	42.2	105	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Selenium	ug/L	40	44.3	111	85-115	
Thallium	ug/L	40	38.3	96	85-115	

MATRIX SPIKE SAMPLE: 1728590

Parameter	Units	60215292002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.092J	40	40.2	100	70-130	
Arsenic	ug/L	2.1	40	41.2	98	70-130	
Cadmium	ug/L	<0.029	40	37.3	93	70-130	
Chromium	ug/L	<0.34	40	38.7	96	70-130	
Selenium	ug/L	<0.18	40	37.2	93	70-130	
Thallium	ug/L	<0.50	40	37.0	92	70-130	

MATRIX SPIKE SAMPLE: 1728591

Parameter	Units	60215292004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.15J	40	40.8	102	70-130	
Arsenic	ug/L	0.72J	40	39.8	98	70-130	
Cadmium	ug/L	0.095J	40	38.9	97	70-130	
Chromium	ug/L	0.64J	40	39.5	97	70-130	
Selenium	ug/L	6.3	40	44.2	95	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

MATRIX SPIKE SAMPLE: 1728591

Parameter	Units	60215292004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Thallium	ug/L	<0.50	40	36.6	92	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423301 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60215292002, 60215292010

METHOD BLANK: 1728448 Matrix: Water
Associated Lab Samples: 60215292002, 60215292010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	03/22/16 10:28	

LABORATORY CONTROL SAMPLE: 1728449

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

SAMPLE DUPLICATE: 1728450

Parameter	Units	60215252009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3580	3560	1	10	

SAMPLE DUPLICATE: 1728486

Parameter	Units	60215284001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	206	212	3	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423408 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60215292001, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292012, 60215292013, 60215292014, 60215292015

METHOD BLANK: 1728797 Matrix: Water
Associated Lab Samples: 60215292001, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292012, 60215292013, 60215292014, 60215292015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	03/23/16 08:20	

LABORATORY CONTROL SAMPLE: 1728798

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	951	95	80-120	

SAMPLE DUPLICATE: 1728799

Parameter	Units	60215288001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	389	389	0	10	

SAMPLE DUPLICATE: 1728800

Parameter	Units	60215292004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	468	609	26	10	D6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423206
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60215292010

SAMPLE DUPLICATE: 1728090

Parameter	Units	60215020001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423374 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60215292002, 60215292004, 60215292012, 60215292013, 60215292014

SAMPLE DUPLICATE: 1728707

Parameter	Units	60215292004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 424886 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60215292001, 60215292003, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292015

SAMPLE DUPLICATE: 1735395

Parameter	Units	60215288001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.3	8.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 423190 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

METHOD BLANK: 1728045 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	03/21/16 20:13	
Fluoride	mg/L	<0.073	0.20	0.073	03/21/16 20:13	
Sulfate	mg/L	<0.25	1.0	0.25	03/21/16 20:13	

METHOD BLANK: 1728463 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292010, 60215292012, 60215292013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	03/21/16 09:37	
Sulfate	mg/L	<0.25	1.0	0.25	03/21/16 09:37	

LABORATORY CONTROL SAMPLE: 1728046

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	102	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

LABORATORY CONTROL SAMPLE: 1728464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1728047 1728048

Parameter	Units	60215292004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.0	5	5	6.9	6.9	99	99	80-120	0	15	
Fluoride	mg/L	0.12J	2.5	2.5	2.8	2.8	107	107	80-120	0	15	
Sulfate	mg/L	30.0	10	10	39.6	39.7	97	98	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

MATRIX SPIKE SAMPLE: 1728049

Parameter	Units	60215292011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	85.8	100	189	103	80-120	
Fluoride	mg/L	<0.073	2.5	2.8	110	80-120	
Sulfate	mg/L	1170	500	1660	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-1S **Lab ID: 60215292001** Collected: 03/17/16 12:55 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.109 ± 0.338 (0.655) C:NA T:93%**	pCi/L	04/07/16 20:28	13982-63-3	
Radium-228	EPA 904.0	**1.15 ± 0.479 (0.773) C:78% T:86%**	pCi/L	04/08/16 16:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-2S **Lab ID: 60215292002** Collected: 03/16/16 16:15 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.725 ± 0.403 (0.151) C:NA T:94%**	pCi/L	04/07/16 20:28	13982-63-3	
Radium-228	EPA 904.0	**1.30 ± 0.496 (0.749) C:80% T:82%**	pCi/L	04/08/16 16:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-3S **Lab ID: 60215292003** Collected: 03/17/16 10:38 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.109 ± 0.249 (0.401) C:NA T:93%**	pCi/L	04/07/16 20:45	13982-63-3	
Radium-228	EPA 904.0	**0.169 ± 0.329 (0.725) C:79% T:84%**	pCi/L	04/08/16 16:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-4S **Lab ID: 60215292004** Collected: 03/17/16 08:35 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.201 ± 0.230 (0.136) C:NA T:99%**	pCi/L	04/07/16 20:45	13982-63-3	
Radium-228	EPA 904.0	**0.243 ± 0.333 (0.712) C:83% T:83%**	pCi/L	04/08/16 12:40	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-5S **Lab ID: 60215292005** Collected: 03/17/16 09:02 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.385 ± 0.288 (0.149) C:NA T:96%**	pCi/L	04/07/16 21:03	13982-63-3	
Radium-228	EPA 904.0	**0.343 ± 0.361 (0.750) C:83% T:83%**	pCi/L	04/08/16 16:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-6S **Lab ID: 60215292006** Collected: 03/17/16 10:00 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.524 ± 0.502 (0.764) C:NA T:92%**	pCi/L	04/07/16 20:09	13982-63-3	
Radium-228	EPA 904.0	**0.749 ± 0.423 (0.778) C:81% T:84%**	pCi/L	04/08/16 16:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-8S **Lab ID: 60215292007** Collected: 03/17/16 12:55 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.209 ± 0.240 (0.142) C:NA T:96%**	pCi/L	04/07/16 21:03	13982-63-3	
Radium-228	EPA 904.0	**1.02 ± 0.464 (0.782) C:81% T:82%**	pCi/L	04/08/16 17:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-7S **Lab ID: 60215292008** Collected: 03/17/16 11:02 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.107 ± 0.298 (0.577) C:NA T:96%**	pCi/L	04/07/16 21:03	13982-63-3	
Radium-228	EPA 904.0	**0.230 ± 0.336 (0.724) C:82% T:87%**	pCi/L	04/08/16 17:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-9S **Lab ID: 60215292009** Collected: 03/17/16 15:25 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.215 ± 0.260 (0.396) C:NA T:94%**	pCi/L	04/07/16 21:19	13982-63-3	
Radium-228	EPA 904.0	**0.309 ± 0.330 (0.684) C:73% T:90%**	pCi/L	04/08/16 17:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-BMW-1S **Lab ID: 60215292010** Collected: 03/16/16 09:03 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.328 ± 0.306 (0.403) C:NA T:93%**	pCi/L	04/07/16 21:19	13982-63-3	
Radium-228	EPA 904.0	**-0.0581 ± 0.293 (0.696) C:83% T:87%**	pCi/L	04/08/16 12:40	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-DUP-1 **Lab ID: 60215292012** Collected: 03/17/16 08:00 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.054 ± 0.249 (0.506) C:NA T:97%**	pCi/L	04/07/16 21:31	13982-63-3	
Radium-228	EPA 904.0	**0.214 ± 0.407 (0.893) C:78% T:80%**	pCi/L	04/08/16 13:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-DUP-2 **Lab ID: 60215292013** Collected: 03/17/16 08:00 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.179 ± 0.273 (0.162) C:NA T:87%**	pCi/L	04/07/16 22:20	13982-63-3	
Radium-228	EPA 904.0	**0.458 ± 0.396 (0.800) C:75% T:87%**	pCi/L	04/08/16 12:41	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-FB-1 **Lab ID: 60215292014** Collected: 03/17/16 08:45 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.055 ± 0.249 (0.588) C:NA T:100%**	pCi/L	04/07/16 22:05	13982-63-3	
Radium-228	EPA 904.0	**0.410 ± 0.403 (0.831) C:81% T:85%**	pCi/L	04/08/16 13:26	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-FB-2 **Lab ID: 60215292015** Collected: 03/17/16 12:37 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.245 (0.395) C:NA T:93%**	pCi/L	04/07/16 22:05	13982-63-3	
Radium-228	EPA 904.0	**-0.0196 ± 0.397 (0.920) C:75% T:88%**	pCi/L	04/08/16 13:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-4S MS **Lab ID: 60215292016** Collected: 03/17/16 08:35 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**94.4%REC ± NA (NA)**	pCi/L	04/07/16 21:31	13982-63-3	
Radium-228	EPA 904.0	**100 %REC +/- NA (NA) C:NA T:NA**	pCi/L	04/08/16 15:43	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Sample: S-LMW-4S MSD **Lab ID: 60215292017** Collected: 03/17/16 08:35 Received: 03/19/16 05:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**88.8 %REC 6.06 RPD +/- NA (NA) C:NA T:NA**	pCi/L	04/12/16 10:41	13982-63-3	
Radium-228	EPA 904.0	**71.5 %REC 33.0 RPD +/- NA (NA) C:NA T:NA**	pCi/L	04/08/16 15:44	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 214973 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60215292004, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015, 60215292016, 60215292017

METHOD BLANK: 1050675 Matrix: Water
Associated Lab Samples: 60215292004, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015, 60215292016, 60215292017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.313 ± 0.431 (0.923) C:83% T:80%	pCi/L	04/08/16 14:11	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 214972 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009

METHOD BLANK: 1050674 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.436 ± 0.387 (0.788) C:78% T:88%	pCi/L	04/08/16 12:56	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

QC Batch: 214146 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015, 60215292016, 60215292017

METHOD BLANK: 1046813 Matrix: Water
Associated Lab Samples: 60215292001, 60215292002, 60215292003, 60215292004, 60215292005, 60215292006, 60215292007, 60215292008, 60215292009, 60215292010, 60215292012, 60215292013, 60215292014, 60215292015, 60215292016, 60215292017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.101 ± 0.281 (0.545) C:NA T:104%	pCi/L	04/07/16 20:45	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60215292001	**S-LMW-1S**	EPA 200.7	423334	EPA 200.7	423389
60215292002	**S-LMW-2S**	EPA 200.7	423334	EPA 200.7	423389
60215292003	**S-LMW-3S**	EPA 200.7	423334	EPA 200.7	423389
60215292004	**S-LMW-4S**	EPA 200.7	423334	EPA 200.7	423389
60215292005	**S-LMW-5S**	EPA 200.7	423334	EPA 200.7	423389
60215292006	**S-LMW-6S**	EPA 200.7	423334	EPA 200.7	423389
60215292007	**S-LMW-8S**	EPA 200.7	423334	EPA 200.7	423389
60215292008	**S-LMW-7S**	EPA 200.7	423334	EPA 200.7	423389
60215292009	**S-LMW-9S**	EPA 200.7	423334	EPA 200.7	423389
60215292010	**S-BMW-1S**	EPA 200.7	423334	EPA 200.7	423389
60215292012	**S-LMW-DUP-1**	EPA 200.7	423334	EPA 200.7	423389
60215292013	**S-LMW-DUP-2**	EPA 200.7	423334	EPA 200.7	423389
60215292014	**S-LMW-FB-1**	EPA 200.7	423334	EPA 200.7	423389
60215292015	**S-LMW-FB-2**	EPA 200.7	423334	EPA 200.7	423389
60215292001	**S-LMW-1S**	EPA 200.8	423335	EPA 200.8	423390
60215292002	**S-LMW-2S**	EPA 200.8	423335	EPA 200.8	423390
60215292003	**S-LMW-3S**	EPA 200.8	423335	EPA 200.8	423390
60215292004	**S-LMW-4S**	EPA 200.8	423335	EPA 200.8	423390
60215292005	**S-LMW-5S**	EPA 200.8	423335	EPA 200.8	423390
60215292006	**S-LMW-6S**	EPA 200.8	423335	EPA 200.8	423390
60215292007	**S-LMW-8S**	EPA 200.8	423335	EPA 200.8	423390
60215292008	**S-LMW-7S**	EPA 200.8	423335	EPA 200.8	423390
60215292009	**S-LMW-9S**	EPA 200.8	423335	EPA 200.8	423390
60215292010	**S-BMW-1S**	EPA 200.8	423335	EPA 200.8	423390
60215292012	**S-LMW-DUP-1**	EPA 200.8	423335	EPA 200.8	423390
60215292013	**S-LMW-DUP-2**	EPA 200.8	423335	EPA 200.8	423390
60215292014	**S-LMW-FB-1**	EPA 200.8	423335	EPA 200.8	423390
60215292015	**S-LMW-FB-2**	EPA 200.8	423335	EPA 200.8	423390
60215292001	**S-LMW-1S**	EPA 7470	424740	EPA 7470	424780
60215292002	**S-LMW-2S**	EPA 7470	424740	EPA 7470	424780
60215292003	**S-LMW-3S**	EPA 7470	424740	EPA 7470	424780
60215292004	**S-LMW-4S**	EPA 7470	424740	EPA 7470	424780
60215292005	**S-LMW-5S**	EPA 7470	424740	EPA 7470	424780
60215292006	**S-LMW-6S**	EPA 7470	424740	EPA 7470	424780
60215292007	**S-LMW-8S**	EPA 7470	424740	EPA 7470	424780
60215292008	**S-LMW-7S**	EPA 7470	424740	EPA 7470	424780
60215292009	**S-LMW-9S**	EPA 7470	424740	EPA 7470	424780
60215292010	**S-BMW-1S**	EPA 7470	424740	EPA 7470	424780
60215292012	**S-LMW-DUP-1**	EPA 7470	424740	EPA 7470	424780
60215292013	**S-LMW-DUP-2**	EPA 7470	424740	EPA 7470	424780
60215292014	**S-LMW-FB-1**	EPA 7470	424740	EPA 7470	424780
60215292015	**S-LMW-FB-2**	EPA 7470	424740	EPA 7470	424780
60215292001	**S-LMW-1S**	EPA 903.1	214146		
60215292002	**S-LMW-2S**	EPA 903.1	214146		
60215292003	**S-LMW-3S**	EPA 903.1	214146		
60215292004	**S-LMW-4S**	EPA 903.1	214146		
60215292005	**S-LMW-5S**	EPA 903.1	214146		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60215292006	S-LMW-6S	EPA 903.1	214146		
60215292007	S-LMW-8S	EPA 903.1	214146		
60215292008	S-LMW-7S	EPA 903.1	214146		
60215292009	S-LMW-9S	EPA 903.1	214146		
60215292010	S-BMW-1S	EPA 903.1	214146		
60215292012	S-LMW-DUP-1	EPA 903.1	214146		
60215292013	S-LMW-DUP-2	EPA 903.1	214146		
60215292014	S-LMW-FB-1	EPA 903.1	214146		
60215292015	S-LMW-FB-2	EPA 903.1	214146		
60215292016	S-LMW-4S MS	EPA 903.1	214146		
60215292017	S-LMW-4S MSD	EPA 903.1	214146		
60215292001	S-LMW-1S	EPA 904.0	214972		
60215292002	S-LMW-2S	EPA 904.0	214972		
60215292003	S-LMW-3S	EPA 904.0	214972		
60215292004	S-LMW-4S	EPA 904.0	214973		
60215292005	S-LMW-5S	EPA 904.0	214972		
60215292006	S-LMW-6S	EPA 904.0	214972		
60215292007	S-LMW-8S	EPA 904.0	214972		
60215292008	S-LMW-7S	EPA 904.0	214972		
60215292009	S-LMW-9S	EPA 904.0	214972		
60215292010	S-BMW-1S	EPA 904.0	214973		
60215292012	S-LMW-DUP-1	EPA 904.0	214973		
60215292013	S-LMW-DUP-2	EPA 904.0	214973		
60215292014	S-LMW-FB-1	EPA 904.0	214973		
60215292015	S-LMW-FB-2	EPA 904.0	214973		
60215292016	S-LMW-4S MS	EPA 904.0	214973		
60215292017	S-LMW-4S MSD	EPA 904.0	214973		
60215292001	S-LMW-1S	SM 2540C	423408		
60215292002	S-LMW-2S	SM 2540C	423301		
60215292003	S-LMW-3S	SM 2540C	423408		
60215292004	S-LMW-4S	SM 2540C	423408		
60215292005	S-LMW-5S	SM 2540C	423408		
60215292006	S-LMW-6S	SM 2540C	423408		
60215292007	S-LMW-8S	SM 2540C	423408		
60215292008	S-LMW-7S	SM 2540C	423408		
60215292009	S-LMW-9S	SM 2540C	423408		
60215292010	S-BMW-1S	SM 2540C	423301		
60215292012	S-LMW-DUP-1	SM 2540C	423408		
60215292013	S-LMW-DUP-2	SM 2540C	423408		
60215292014	S-LMW-FB-1	SM 2540C	423408		
60215292015	S-LMW-FB-2	SM 2540C	423408		
60215292001	S-LMW-1S	SM 4500-H+B	424886		
60215292002	S-LMW-2S	SM 4500-H+B	423374		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60215292

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60215292003	**S-LMW-3S**	SM 4500-H+B	424886		
60215292004	**S-LMW-4S**	SM 4500-H+B	423374		
60215292005	**S-LMW-5S**	SM 4500-H+B	424886		
60215292006	**S-LMW-6S**	SM 4500-H+B	424886		
60215292007	**S-LMW-8S**	SM 4500-H+B	424886		
60215292008	**S-LMW-7S**	SM 4500-H+B	424886		
60215292009	**S-LMW-9S**	SM 4500-H+B	424886		
60215292010	**S-BMW-1S**	SM 4500-H+B	423206		
60215292012	**S-LMW-DUP-1**	SM 4500-H+B	423374		
60215292013	**S-LMW-DUP-2**	SM 4500-H+B	423374		
60215292014	**S-LMW-FB-1**	SM 4500-H+B	423374		
60215292015	**S-LMW-FB-2**	SM 4500-H+B	424886		
60215292001	**S-LMW-1S**	EPA 300.0	423190		
60215292002	**S-LMW-2S**	EPA 300.0	423190		
60215292003	**S-LMW-3S**	EPA 300.0	423190		
60215292004	**S-LMW-4S**	EPA 300.0	423190		
60215292005	**S-LMW-5S**	EPA 300.0	423190		
60215292006	**S-LMW-6S**	EPA 300.0	423190		
60215292007	**S-LMW-8S**	EPA 300.0	423190		
60215292008	**S-LMW-7S**	EPA 300.0	423190		
60215292009	**S-LMW-9S**	EPA 300.0	423190		
60215292010	**S-BMW-1S**	EPA 300.0	423190		
60215292012	**S-LMW-DUP-1**	EPA 300.0	423190		
60215292013	**S-LMW-DUP-2**	EPA 300.0	423190		
60215292014	**S-LMW-FB-1**	EPA 300.0	423190		
60215292015	**S-LMW-FB-2**	EPA 300.0	423190		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60215292

60215292

Client Name: Golder

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

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: CF +1.0 T-239 / CF 0.0 T-262 Type of Ice: (Wet) and Blue None (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 12.9, 12.4, 2.0, 14.3

Temperature should be above freezing to 6°C

Optional
Proj Due Date:
Proj Name:

Date and initials of person examining contents: BB 3/19/16

Chain of Custody present:	☑Yes	☐No	☐N/A
Chain of Custody filled out:	☑Yes	☐No	☐N/A
Chain of Custody relinquished:	☑Yes	☐No	☐N/A
Sampler name & signature on COC:	☑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 soils frozen w/in 48hrs?	☐Yes	☐No	☑N/A
Filtered volume received for dissolved tests?	☐Yes	☐No	☑N/A
Sample labels match COC: Includes date/time/ID/analyses Y Matrix: WT	☑Yes	☐No	☐N/A
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes	☑No	
Trip Blank present: Pace Trip Blank lot # (if purchased): _____	☐Yes	☐No	☑N/A
Headspace in VOA vials (>6mm):	☐Yes	☐No	☑N/A
Project sampled in USDA Regulated Area:	☐Yes	☐No	☑N/A
Additional labels attached to 5035A vials in the field?	☐Yes	☐No	☑N/A

1. - Radium metals containers not shipped with ice, temp OK for those three coolers.
2.
3.
4.
5.
6. pH
7.
8.
9.
10.
11.
12.
13.
14.

Initial when completed	Lot # of added preservative

15.
16.
17. List State:
18.

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: 3/21/16

F-KS-C-003-Rev.9, 30June2015

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:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N				2.0			60215292
1	S-LMW-1S	WT	G	3/17/16	1220	3/17/16	1255		6	1		5							1	1	1	1	4	3BP3U	3BP3N		4BP2			N	01
2	S-LMW-2S	WT	G	3/16/16	1539	3/16/16	1615		6	1		5							1	1	1	1	4								02
3	S-LMW-3S	WT	G	3/17/16	1012	3/17/16	1038		6	1		5							1	1	1	1	4								03
4	S-LMW-4S	WT	G	3/17/16	0802	3/17/16	0835		18	3		15							3	3	3	3	12								12BP2N 3BP3U 3BP3N 04
5	S-LMW-5S	WT	G	3/17/16	0812	3/17/16	0902		6	1		5							1	1	1	1	4								05
6	S-LMW-6S	WT	G	3/17/16	0930	3/17/16	1000		6	1		5							1	1	1	1	4								06
7	S-LMW-~~7S~~ 8S	WT	G	3/17/16	1215	3/17/16	1255		6	1		5							1	1	1	1	4								07
8	~~S-LMW-8S~~ S-LMW-7S	WT	G	3/17/16	1027	3/17/16	1102		6	1		5							1	1	1	1	4								08
9	S-LMW-9S	WT	G	3/17/16	1451	3/17/16	1525		6	1		5							1	1	1	1	4								09
10	S-BMW-1S	WT	G	3/16/16	0827	3/16/16	0903		6	1		5							1	1	1	1	4								010
11	S-BMW-2S	WT	G	3/16/16	1150	3/16/16	1235		6	1		5							1	1	1	1	4								011
12	S-LMW-DUP-1	WT	G	3/17/16	—	3/17/16	—		6	1		5							1	1	1	1	4	Y	Y		Y				012

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	3/18/16	1711	PACE	3/18/16	1711				
	PACE	3/18/16	1700			0955	12.9	N	Y	Y
							12.4	N	Y	Y
							14.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Swartz

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/18/16

*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
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: 2 of 2

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	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 ↓	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N		
1	S-LMW-DUP-2	WT	G	3/17/16	—	3/17/16	—		6	1		5							1	1	1	1	4		BP3U BP3N 4BP2N 013
2	S-LMW-FB-1	WT	G	3/17/16	0845	3/17/16	0845		6	1		5							1	1	1	1	4		014
3	S-LMW-FB-2	WT	G	3/17/16	1237	3/17/16	1237		6	1		5							1	1	1	1	4		015
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	3/18/16	1721	PACE	3/18/16	1721				
	PACE	3/18/16	1700	Per FNP since	3/19/16	0555	12.9	N	Y	Y
							12.4	N	Y	Y
						14.3H	2.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Snozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/18/16

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

January 02, 2018

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on May 13, 2016. 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, 1/2/18: Revision

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
Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60219086001	**S-LMW-1S**	Water	05/10/16 10:15	05/13/16 03:30
60219086002	**S-LMW-2S**	Water	05/10/16 15:47	05/13/16 03:30
60219086003	**S-LMW-3S**	Water	05/09/16 14:20	05/13/16 03:30
60219086004	**S-LMW-4S**	Water	05/09/16 12:51	05/13/16 03:30
60219086005	**S-LMW-5S**	Water	05/09/16 14:10	05/13/16 03:30
60219086006	**S-LMW-6S**	Water	05/11/16 09:12	05/13/16 03:30
60219086007	**S-LMW-7S**	Water	05/11/16 10:10	05/13/16 03:30
60219086008	**S-LMW-8S**	Water	05/11/16 10:58	05/13/16 03:30
60219086009	**S-LMW-9S**	Water	05/10/16 16:12	05/13/16 03:30
60219086010	**S-BMW-1S**	Water	05/09/16 10:17	05/13/16 03:30
60219086012	**S-LMW-DUP-1**	Water	05/09/16 08:00	05/13/16 03:30
60219086013	**S-LMW-DUP-2**	Water	05/10/16 08:00	05/13/16 03:30
60219086014	**S-LMW-FB-1**	Water	05/09/16 13:58	05/13/16 03:30
60219086015	**S-LMW-FB-2**	Water	05/11/16 09:00	05/13/16 03:30
60219086016	**S-LMW-4S MS**	Water	05/09/16 12:51	05/13/16 03:30
60219086017	**S-LMW-4S MSD**	Water	05/09/16 12:51	05/13/16 03:30

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60219086001	**S-LMW-1S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086002	**S-LMW-2S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086003	**S-LMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086004	**S-LMW-4S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086005	**S-LMW-5S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086006	**S-LMW-6S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086007	**S-LMW-7S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086008	**S-LMW-8S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086009	**S-LMW-9S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086010	**S-BMW-1S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086012	**S-LMW-DUP-1**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086013	**S-LMW-DUP-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086014	**S-LMW-FB-1**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	CRS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60219086015	**S-LMW-FB-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	OL	3	PASI-K
60219086016	**S-LMW-4S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60219086017	**S-LMW-4S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-1S **Lab ID: 60219086001** Collected: 05/10/16 10:15 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**145**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 15:59	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 15:59	7440-41-7	
Boron	**1400**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 15:59	7440-42-8	
Calcium	**87200**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 15:59	7440-70-2	
Cobalt	**1.7J**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 15:59	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 15:59	7439-92-1	
Lithium	**16.6**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 15:59	7439-93-2	
Molybdenum	**74.2**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 15:59	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.32J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:09	7440-36-0	
Arsenic	**1.8**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:09	7440-38-2	
Cadmium	**0.040J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:09	7440-43-9	
Chromium	**0.53J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:09	7440-47-3	
Selenium	**0.92J**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:09	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:09	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 15:47	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**456**	mg/L	5.0	5.0	1		05/17/16 10:00		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**21.6**	mg/L	2.0	1.0	2		05/27/16 19:26	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.073	1		05/25/16 17:48	16984-48-8	
Sulfate	**131**	mg/L	10.0	2.5	10		05/27/16 20:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-2S **Lab ID: 60219086002** Collected: 05/10/16 15:47 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**118**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:03	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:03	7440-41-7	
Boron	**12700**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:03	7440-42-8	
Calcium	**161000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:03	7440-70-2	
Cobalt	**3.5J**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:03	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:03	7439-92-1	
Lithium	**29.9**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:03	7439-93-2	
Molybdenum	**1470**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:03	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.081J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:13	7440-36-0	
Arsenic	**1.7**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:13	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:13	7440-43-9	
Chromium	**0.62J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:13	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:13	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:13	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 15:49	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**915**	mg/L	5.0	5.0	1		05/17/16 10:01		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**61.6**	mg/L	5.0	2.5	5		05/27/16 21:25	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.073	1		05/25/16 18:33	16984-48-8	
Sulfate	**371**	mg/L	50.0	12.4	50		05/27/16 21:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-3S **Lab ID: 60219086003** Collected: 05/09/16 14:20 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**116**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:07	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:07	7440-41-7	
Boron	**241**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:07	7440-42-8	
Calcium	**126000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:07	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:07	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:07	7439-92-1	
Lithium	**19.6**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:07	7439-93-2	
Molybdenum	**1.5J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:07	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.098J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:18	7440-36-0	
Arsenic	**0.43J**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:18	7440-38-2	
Cadmium	**0.037J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:18	7440-43-9	
Chromium	**1.3**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:18	7440-47-3	
Selenium	**2.5**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:18	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 15:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**512**	mg/L	5.0	5.0	1		05/16/16 08:41		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**21.6**	mg/L	2.0	1.0	2		05/27/16 21:55	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.073	1		05/25/16 18:48	16984-48-8	
Sulfate	**38.4**	mg/L	2.0	0.50	2		05/27/16 21:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-4S **Lab ID: 60219086004** Collected: 05/09/16 12:51 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**233**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:18	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:18	7440-41-7	
Boron	**190**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:18	7440-42-8	
Calcium	**153000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:18	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:18	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:18	7439-92-1	
Lithium	**23.5**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:18	7439-93-2	
Molybdenum	**3.9J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:18	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:31	7440-36-0	
Arsenic	**0.60J**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:31	7440-38-2	
Cadmium	**0.035J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:31	7440-43-9	
Chromium	**0.77J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:31	7440-47-3	
Selenium	**2.3**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:31	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:31	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 15:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**626**	mg/L	5.0	5.0	1		05/16/16 08:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.4**	mg/L	1.0	0.50	1		05/25/16 19:03	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	0.073	1		05/25/16 19:03	16984-48-8	
Sulfate	**33.4**	mg/L	5.0	1.2	5		05/27/16 22:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-5S **Lab ID: 60219086005** Collected: 05/09/16 14:10 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**75.1**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:29	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:29	7440-41-7	
Boron	**11000**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:29	7440-42-8	
Calcium	**278000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:29	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:29	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:29	7439-92-1	
Lithium	**59.5**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:29	7439-93-2	
Molybdenum	**373**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:29	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:44	7440-36-0	
Arsenic	**5.6**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:44	7440-38-2	
Cadmium	**0.96**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:44	7440-43-9	
Chromium	**0.64J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:44	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:44	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:44	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:04	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1760**	mg/L	5.0	5.0	1		05/16/16 08:43		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**29.9**	mg/L	5.0	2.5	5		05/27/16 23:25	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.073	1		05/25/16 19:33	16984-48-8	
Sulfate	**812**	mg/L	100	24.8	100		05/27/16 23:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-6S **Lab ID: 60219086006** Collected: 05/11/16 09:12 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**42.2**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:33	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:33	7440-41-7	
Boron	**13900**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:33	7440-42-8	
Calcium	**286000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:33	7440-70-2	
Cobalt	**5.9**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:33	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:33	7439-92-1	
Lithium	**24.2**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:33	7439-93-2	
Molybdenum	**1.0J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:33	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:48	7440-36-0	
Arsenic	**0.88J**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:48	7440-38-2	
Cadmium	**0.75**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:48	7440-43-9	
Chromium	**0.53J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:48	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:48	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:07	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1680**	mg/L	5.0	5.0	1		05/18/16 17:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.8**	mg/L	1.0	0.50	1		05/25/16 20:17	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.073	1		05/25/16 20:17	16984-48-8	
Sulfate	**880**	mg/L	100	24.8	100		05/27/16 23:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-7S **Lab ID: 60219086007** Collected: 05/11/16 10:10 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**125**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:36	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:36	7440-41-7	
Boron	**1460**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:36	7440-42-8	
Calcium	**210000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:36	7440-70-2	
Cobalt	**2.6J**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:36	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:36	7439-92-1	
Lithium	**20.7**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:36	7439-93-2	
Molybdenum	**4.8J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:36	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.11J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:53	7440-36-0	
Arsenic	**0.35J**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:53	7440-38-2	
Cadmium	**0.19J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:53	7440-43-9	
Chromium	**0.61J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:53	7440-47-3	
Selenium	**2.1**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:53	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:53	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:09	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1030**	mg/L	5.0	5.0	1		05/18/16 17:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**14.0**	mg/L	1.0	0.50	1		05/25/16 20:32	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.073	1		05/25/16 20:32	16984-48-8	
Sulfate	**301**	mg/L	50.0	12.4	50		05/28/16 00:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-8S **Lab ID: 60219086008** Collected: 05/11/16 10:58 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**100**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:40	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:40	7440-41-7	
Boron	**4900**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:40	7440-42-8	
Calcium	**144000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:40	7440-70-2	
Cobalt	**4.3J**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:40	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:40	7439-92-1	
Lithium	**21.1**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:40	7439-93-2	
Molybdenum	**89.1**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:40	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.15J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 14:57	7440-36-0	
Arsenic	**1.5**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 14:57	7440-38-2	
Cadmium	**0.064J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 14:57	7440-43-9	
Chromium	**0.46J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 14:57	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 14:57	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 14:57	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:11	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**826**	mg/L	5.0	5.0	1		05/18/16 17:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**36.0**	mg/L	5.0	2.5	5		05/28/16 00:24	16887-00-6	
Fluoride	**0.99**	mg/L	0.20	0.073	1		05/25/16 20:47	16984-48-8	
Sulfate	**368**	mg/L	50.0	12.4	50		05/28/16 00:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-9S **Lab ID: 60219086009** Collected: 05/10/16 16:12 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**84.2**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:44	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:44	7440-41-7	
Boron	**1070**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:44	7440-42-8	
Calcium	**213000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:44	7440-70-2	
Cobalt	**10.1**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:44	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:44	7439-92-1	
Lithium	**45.1**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:44	7439-93-2	
Molybdenum	**6.8J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:44	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:01	7440-36-0	
Arsenic	**4.0**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:01	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:01	7440-43-9	
Chromium	**0.71J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:01	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:01	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1160**	mg/L	5.0	5.0	1		05/17/16 10:01		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**85.7**	mg/L	10.0	5.0	10		05/28/16 00:54	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.073	1		05/25/16 21:02	16984-48-8	
Sulfate	**328**	mg/L	50.0	12.4	50		05/28/16 01:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-BMW-1S **Lab ID: 60219086010** Collected: 05/09/16 10:17 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**137**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 16:48	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 16:48	7440-41-7	
Boron	**65.2J**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 16:48	7440-42-8	
Calcium	**144000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 16:48	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 16:48	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 16:48	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 16:48	7439-93-2	
Molybdenum	**2.3J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 16:48	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.064J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:06	7440-36-0	
Arsenic	**1.0**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:06	7440-38-2	
Cadmium	**0.097J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:06	7440-43-9	
Chromium	**0.44J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:06	7440-47-3	
Selenium	**0.74J**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:06	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:06	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:16	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**517**	mg/L	5.0	5.0	1		05/16/16 08:44		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.5**	mg/L	1.0	0.50	1		05/25/16 21:17	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.073	1		05/25/16 21:17	16984-48-8	
Sulfate	**26.2**	mg/L	2.0	0.50	2		05/28/16 01:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-DUP-1 **Lab ID: 60219086012** Collected: 05/09/16 08:00 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**119**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 17:03	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 17:03	7440-41-7	
Boron	**238**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 17:03	7440-42-8	
Calcium	**132000**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 17:03	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 17:03	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 17:03	7439-92-1	
Lithium	**20.4**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 17:03	7439-93-2	
Molybdenum	**1.3J**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 17:03	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.085J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:32	7440-36-0	
Arsenic	**0.53J**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:32	7440-38-2	
Cadmium	**0.042J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:32	7440-43-9	
Chromium	**0.96J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:32	7440-47-3	
Selenium	**2.8**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:32	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:20	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**530**	mg/L	5.0	5.0	1		05/16/16 08:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**22.2**	mg/L	2.0	1.0	2		05/28/16 02:38	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.073	1		05/25/16 21:47	16984-48-8	
Sulfate	**38.7**	mg/L	2.0	0.50	2		05/28/16 02:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-DUP-2 **Lab ID: 60219086013** Collected: 05/10/16 08:00 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**142**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 17:06	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 17:06	7440-41-7	
Boron	**1340**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 17:06	7440-42-8	
Calcium	**87200**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 17:06	7440-70-2	
Cobalt	**1.4J**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 17:06	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 17:06	7439-92-1	
Lithium	**15.8**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 17:06	7439-93-2	
Molybdenum	**71.4**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 17:06	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.32J**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:36	7440-36-0	
Arsenic	**1.8**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:36	7440-38-2	
Cadmium	**0.046J**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:36	7440-43-9	
Chromium	**0.39J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:36	7440-47-3	
Selenium	**0.91J**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:36	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:22	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**458**	mg/L	5.0	5.0	1		05/17/16 10:02		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.5**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**21.6**	mg/L	2.0	1.0	2		05/28/16 03:08	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.073	1		05/25/16 22:02	16984-48-8	
Sulfate	**134**	mg/L	10.0	2.5	10		05/28/16 03:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-FB-1 **Lab ID: 60219086014** Collected: 05/09/16 13:58 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**<0.58**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 17:10	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 17:10	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 17:10	7440-42-8	
Calcium	**24.4J**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 17:10	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 17:10	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 17:10	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 17:10	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 17:10	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:23	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:23	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:23	7440-43-9	
Chromium	**0.59J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:23	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:23	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:23	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:29	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		05/16/16 08:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.4**	Std. Units	0.10	0.10	1		05/13/16 13:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		05/25/16 22:17	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		05/25/16 22:17	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		05/25/16 22:17	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-FB-2 **Lab ID: 60219086015** Collected: 05/11/16 09:00 Received: 05/13/16 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**<0.58**	ug/L	10.0	0.58	1	05/16/16 15:30	05/19/16 17:14	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	05/16/16 15:30	05/19/16 17:14	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	05/16/16 15:30	05/19/16 17:14	7440-42-8	
Calcium	**12.6J**	ug/L	100	8.1	1	05/16/16 15:30	05/19/16 17:14	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	05/16/16 15:30	05/19/16 17:14	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	05/16/16 15:30	05/19/16 17:14	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	05/16/16 15:30	05/19/16 17:14	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	05/16/16 15:30	05/19/16 17:14	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	05/16/16 15:30	05/24/16 15:28	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	05/16/16 15:30	05/24/16 15:28	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	05/16/16 15:30	05/24/16 15:28	7440-43-9	
Chromium	**0.44J**	ug/L	1.0	0.34	1	05/16/16 15:30	05/24/16 15:28	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	05/16/16 15:30	05/24/16 15:28	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	05/16/16 15:30	05/24/16 15:28	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	05/19/16 10:00	05/19/16 16:31	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		05/18/16 17:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.2**	Std. Units	0.10	0.10	1		05/16/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		05/25/16 22:31	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		05/25/16 22:31	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		05/25/16 22:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 431067 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

METHOD BLANK: 1761325 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	05/19/16 15:45	

LABORATORY CONTROL SAMPLE: 1761326

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1761327 1761328

Parameter	Units	60219086004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.7	5.5	113	110	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430504 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

METHOD BLANK: 1759378 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	05/19/16 15:37	
Beryllium	ug/L	<0.26	1.0	0.26	05/19/16 15:37	
Boron	ug/L	<50.0	100	50.0	05/19/16 15:37	
Calcium	ug/L	11.5J	100	8.1	05/19/16 15:37	
Cobalt	ug/L	<0.72	5.0	0.72	05/19/16 15:37	
Lead	ug/L	<2.5	5.0	2.5	05/19/16 15:37	
Lithium	ug/L	<4.9	10.0	4.9	05/19/16 15:37	
Molybdenum	ug/L	0.57J	20.0	0.52	05/19/16 15:37	

LABORATORY CONTROL SAMPLE: 1759379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1010	101	85-115	
Beryllium	ug/L	1000	976	98	85-115	
Boron	ug/L	1000	890	89	85-115	
Calcium	ug/L	10000	9540	95	85-115	
Cobalt	ug/L	1000	1000	100	85-115	
Lead	ug/L	1000	976	98	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1050	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1759380 1759381

Parameter	Units	60219075001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	192	1000	1000	1220	1210	102	101	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	996	986	100	99	70-130	1	20	
Boron	ug/L	65.4J	1000	1000	981	975	92	91	70-130	1	20	
Calcium	ug/L	103000	10000	10000	114000	111000	112	79	70-130	3	20	
Cobalt	ug/L	<0.72	1000	1000	991	986	99	99	70-130	1	20	
Lead	ug/L	<2.5	1000	1000	960	951	96	95	70-130	1	20	
Lithium	ug/L	24.8	1000	1000	1050	1040	103	102	70-130	1	20	
Molybdenum	ug/L	4.1J	1000	1000	1050	1050	105	105	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1759382 1759383

Parameter	Units	60219086004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	233	1000	1000	1260	1240	102	100	70-130	2	20	
Beryllium	ug/L	<0.26	1000	1000	999	992	100	99	70-130	1	20	
Boron	ug/L	190	1000	1000	1120	1120	93	93	70-130	0	20	
Calcium	ug/L	153000	10000	10000	165000	162000	126	93	70-130	2	20	
Cobalt	ug/L	<0.72	1000	1000	978	969	98	97	70-130	1	20	
Lead	ug/L	<2.5	1000	1000	947	935	95	93	70-130	1	20	
Lithium	ug/L	23.5	1000	1000	1050	1040	103	102	70-130	1	20	
Molybdenum	ug/L	3.9J	1000	1000	1050	1050	105	104	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430506 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

METHOD BLANK: 1759389 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	05/24/16 13:39	
Arsenic	ug/L	<0.10	1.0	0.10	05/24/16 13:39	
Cadmium	ug/L	<0.029	0.50	0.029	05/24/16 13:39	
Chromium	ug/L	<0.34	1.0	0.34	05/24/16 13:39	
Selenium	ug/L	<0.18	1.0	0.18	05/24/16 13:39	
Thallium	ug/L	<0.50	1.0	0.50	05/24/16 13:39	

LABORATORY CONTROL SAMPLE: 1759390

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.0	103	85-115	
Arsenic	ug/L	40	41.8	104	85-115	
Cadmium	ug/L	40	40.4	101	85-115	
Chromium	ug/L	40	40.2	100	85-115	
Selenium	ug/L	40	42.7	107	85-115	
Thallium	ug/L	40	37.9	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1759391 1759392

Parameter	Units	60219075001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.13J	40	40	40.2	41.2	100	103	70-130	3	20	
Arsenic	ug/L	0.34J	40	40	42.0	42.6	104	106	70-130	1	20	
Cadmium	ug/L	<0.029	40	40	38.5	39.6	96	99	70-130	3	20	
Chromium	ug/L	0.74J	40	40	40.6	40.9	100	100	70-130	1	20	
Selenium	ug/L	0.28J	40	40	39.8	41.0	99	102	70-130	3	20	
Thallium	ug/L	<0.50	40	40	36.9	37.8	92	94	70-130	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1759393 1759394

Parameter	Units	60219086004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.16J	40	40	40.0	40.2	100	100	70-130	1	20	
Arsenic	ug/L	0.60J	40	40	41.9	42.0	103	103	70-130	0	20	
Cadmium	ug/L	0.035J	40	40	38.8	38.5	97	96	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1759393 1759394

Parameter	Units	60219086004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	ug/L	0.77J	40	40	39.9	40.2	98	99	70-130	1	20	
Selenium	ug/L	2.3	40	40	42.9	42.4	102	100	70-130	1	20	
Thallium	ug/L	<0.50	40	40	37.0	37.3	92	93	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430413 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60219086003, 60219086004, 60219086005, 60219086010, 60219086012, 60219086014

METHOD BLANK: 1759175 Matrix: Water
Associated Lab Samples: 60219086003, 60219086004, 60219086005, 60219086010, 60219086012, 60219086014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/16/16 08:38	

LABORATORY CONTROL SAMPLE: 1759176

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1150	115	80-120	

SAMPLE DUPLICATE: 1759177

Parameter	Units	60219086004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	626	621	1	10	

SAMPLE DUPLICATE: 1759178

Parameter	Units	60219054001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	321	312	3	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430619 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60219086001, 60219086002, 60219086009, 60219086013

METHOD BLANK: 1759725 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086009, 60219086013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/17/16 09:59	

LABORATORY CONTROL SAMPLE: 1759726

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1190	119	80-120	

SAMPLE DUPLICATE: 1759727

Parameter	Units	60218977003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	13800	13500	2	10	

SAMPLE DUPLICATE: 1759728

Parameter	Units	60219075001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	368	400	8	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 431000 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60219086006, 60219086007, 60219086008, 60219086015

METHOD BLANK: 1760993 Matrix: Water
Associated Lab Samples: 60219086006, 60219086007, 60219086008, 60219086015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/18/16 17:10	

LABORATORY CONTROL SAMPLE: 1760994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1100	110	80-120	

SAMPLE DUPLICATE: 1760995

Parameter	Units	60219311002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4620	4320	7	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430313 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60219086001, 60219086003, 60219086004, 60219086005, 60219086010, 60219086012, 60219086013, 60219086014

SAMPLE DUPLICATE: 1758395

Parameter	Units	60219086004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	0	5	H6

SAMPLE DUPLICATE: 1758396

Parameter	Units	60219054001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	7.6	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 430385 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60219086002, 60219086006, 60219086007, 60219086008, 60219086009, 60219086015

SAMPLE DUPLICATE: 1759118

Parameter	Units	60219075001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.3	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 431972 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

METHOD BLANK: 1765167 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	05/25/16 17:18	
Fluoride	mg/L	<0.073	0.20	0.073	05/25/16 17:18	
Sulfate	mg/L	<0.25	1.0	0.25	05/25/16 17:18	

LABORATORY CONTROL SAMPLE: 1765168

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	2.7	107	90-110	
Sulfate	mg/L	5	5.4	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1765169 1765170

Parameter	Units	60219086001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.29	2.5	2.5	2.7	2.8	97	99	80-120	1	15	

MATRIX SPIKE SAMPLE: 1765171

Parameter	Units	60219086004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.4	5	6.9	91	80-120	
Fluoride	mg/L	0.25	2.5	2.6	93	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 432357 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013

METHOD BLANK: 1766806 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	05/27/16 18:56	
Sulfate	mg/L	<0.25	1.0	0.25	05/27/16 18:56	

LABORATORY CONTROL SAMPLE: 1766807

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1766808 1766809

Parameter	Units	60219086001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21.6	10	10	32.6	32.5	110	109	80-120	0	15	
Sulfate	mg/L	131	50	50	184	186	106	110	80-120	1	15	

MATRIX SPIKE SAMPLE: 1766810

Parameter	Units	60219086004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	33.4	25	59.2	103	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-1S **Lab ID: 60219086001** Collected: 05/10/16 10:15 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.268 ± 0.527 (0.946) C:NA T:94%**	pCi/L	06/06/16 21:14	13982-63-3	
Radium-228	EPA 904.0	**0.192 ± 0.386 (0.851) C:76% T:80%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-2S **Lab ID: 60219086002** Collected: 05/10/16 15:47 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.135 ± 0.308 (0.183) C:NA T:93%**	pCi/L	06/06/16 21:26	13982-63-3	
Radium-228	EPA 904.0	**0.672 ± 0.402 (0.746) C:79% T:81%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-3S **Lab ID: 60219086003** Collected: 05/09/16 14:20 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.289 (0.588) C:NA T:92%**	pCi/L	06/06/16 22:20	13982-63-3	
Radium-228	EPA 904.0	**0.171 ± 0.353 (0.780) C:74% T:87%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-4S **Lab ID: 60219086004** Collected: 05/09/16 12:51 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.132 ± 0.301 (0.179) C:NA T:94%**	pCi/L	06/06/16 21:43	13982-63-3	
Radium-228	EPA 904.0	**0.866 ± 0.454 (0.809) C:73% T:83%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-5S **Lab ID: 60219086005** Collected: 05/09/16 14:10 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.291 (0.592) C:NA T:94%**	pCi/L	06/06/16 22:07	13982-63-3	
Radium-228	EPA 904.0	**0.385 ± 0.347 (0.702) C:77% T:86%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-6S **Lab ID: 60219086006** Collected: 05/11/16 09:12 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.418 ± 0.338 (0.189) C:NA T:89%**	pCi/L	06/06/16 21:27	13982-63-3	
Radium-228	EPA 904.0	**0.0932 ± 0.449 (1.02) C:73% T:76%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-7S **Lab ID: 60219086007** Collected: 05/11/16 10:10 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.260 ± 0.443 (0.782) C:NA T:91%**	pCi/L	06/06/16 21:27	13982-63-3	
Radium-228	EPA 904.0	**0.259 ± 0.338 (0.719) C:76% T:85%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-8S **Lab ID: 60219086008** Collected: 05/11/16 10:58 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.133 ± 0.319 (0.617) C:NA T:96%**	pCi/L	06/06/16 21:44	13982-63-3	
Radium-228	EPA 904.0	**0.373 ± 0.352 (0.721) C:76% T:90%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-9S **Lab ID: 60219086009** Collected: 05/10/16 16:12 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.328 (0.735) C:NA T:90%**	pCi/L	06/06/16 22:07	13982-63-3	
Radium-228	EPA 904.0	**0.502 ± 0.363 (0.703) C:83% T:78%**	pCi/L	06/06/16 16:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-BMW-1S **Lab ID: 60219086010** Collected: 05/09/16 10:17 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.312 ± 0.368 (0.579) C:NA T:98%**	pCi/L	06/06/16 22:06	13982-63-3	
Radium-228	EPA 904.0	**0.188 ± 0.318 (0.692) C:79% T:86%**	pCi/L	06/06/16 16:50	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-DUP-1 **Lab ID: 60219086012** Collected: 05/09/16 08:00 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.323 ± 0.422 (0.696) C:NA T:93%**	pCi/L	06/06/16 21:43	13982-63-3	
Radium-228	EPA 904.0	**0.445 ± 0.340 (0.666) C:77% T:86%**	pCi/L	06/06/16 16:50	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-DUP-2 **Lab ID: 60219086013** Collected: 05/10/16 08:00 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.271 ± 0.422 (0.730) C:NA T:88%**	pCi/L	06/06/16 22:17	13982-63-3	
Radium-228	EPA 904.0	**0.264 ± 0.352 (0.751) C:78% T:81%**	pCi/L	06/06/16 16:50	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-FB-1 **Lab ID: 60219086014** Collected: 05/09/16 13:58 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0631 ± 0.288 (0.465) C:NA T:93%**	pCi/L	06/06/16 22:29	13982-63-3	
Radium-228	EPA 904.0	**0.0320 ± 0.313 (0.727) C:83% T:71%**	pCi/L	06/06/16 16:50	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-FB-2 **Lab ID: 60219086015** Collected: 05/11/16 09:00 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.130 ± 0.298 (0.702) C:NA T:95%**	pCi/L	06/06/16 23:14	13982-63-3	
Radium-228	EPA 904.0	**0.0971 ± 0.303 (0.683) C:80% T:87%**	pCi/L	06/06/16 16:51	15262-20-1	

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-4S MS **Lab ID: 60219086016** Collected: 05/09/16 12:51 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**111 %REC +/- NA (NA) C:NA T:NA**	pCi/L	06/06/16 22:52	13982-63-3	
Radium-228	EPA 904.0	**73.6 %REC +/- NA (NA) C:NA T:NA**	pCi/L	06/06/16 16:53	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Sample: S-LMW-4S MSD **Lab ID: 60219086017** Collected: 05/09/16 12:51 Received: 05/13/16 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**93.8 %REC 16.7 RPD +/- NA (NA) C:NA T:NA**	pCi/L	06/06/16 22:18	13982-63-3	
Radium-228	EPA 904.0	**69.5 %REC 5.77 RPD +/- NA (NA) C:NA T:NA**	pCi/L	06/06/16 16:53	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 220635 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015, 60219086016, 60219086017

METHOD BLANK: 1079582 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015, 60219086016, 60219086017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0688 ± 0.348 (0.793) C:80% T:75%	pCi/L	06/06/16 16:48	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

QC Batch: 220623 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015, 60219086016, 60219086017

METHOD BLANK: 1079570 Matrix: Water
Associated Lab Samples: 60219086001, 60219086002, 60219086003, 60219086004, 60219086005, 60219086006, 60219086007, 60219086008, 60219086009, 60219086010, 60219086012, 60219086013, 60219086014, 60219086015, 60219086016, 60219086017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0639 ± 0.292 (0.471) C:NA T:98%	pCi/L	06/06/16 21:15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60219086001	S-LMW-1S	EPA 200.7	430504	EPA 200.7	430595
60219086002	S-LMW-2S	EPA 200.7	430504	EPA 200.7	430595
60219086003	S-LMW-3S	EPA 200.7	430504	EPA 200.7	430595
60219086004	S-LMW-4S	EPA 200.7	430504	EPA 200.7	430595
60219086005	S-LMW-5S	EPA 200.7	430504	EPA 200.7	430595
60219086006	S-LMW-6S	EPA 200.7	430504	EPA 200.7	430595
60219086007	S-LMW-7S	EPA 200.7	430504	EPA 200.7	430595
60219086008	S-LMW-8S	EPA 200.7	430504	EPA 200.7	430595
60219086009	S-LMW-9S	EPA 200.7	430504	EPA 200.7	430595
60219086010	S-BMW-1S	EPA 200.7	430504	EPA 200.7	430595
60219086012	S-LMW-DUP-1	EPA 200.7	430504	EPA 200.7	430595
60219086013	S-LMW-DUP-2	EPA 200.7	430504	EPA 200.7	430595
60219086014	S-LMW-FB-1	EPA 200.7	430504	EPA 200.7	430595
60219086015	S-LMW-FB-2	EPA 200.7	430504	EPA 200.7	430595
60219086001	S-LMW-1S	EPA 200.8	430506	EPA 200.8	430597
60219086002	S-LMW-2S	EPA 200.8	430506	EPA 200.8	430597
60219086003	S-LMW-3S	EPA 200.8	430506	EPA 200.8	430597
60219086004	S-LMW-4S	EPA 200.8	430506	EPA 200.8	430597
60219086005	S-LMW-5S	EPA 200.8	430506	EPA 200.8	430597
60219086006	S-LMW-6S	EPA 200.8	430506	EPA 200.8	430597
60219086007	S-LMW-7S	EPA 200.8	430506	EPA 200.8	430597
60219086008	S-LMW-8S	EPA 200.8	430506	EPA 200.8	430597
60219086009	S-LMW-9S	EPA 200.8	430506	EPA 200.8	430597
60219086010	S-BMW-1S	EPA 200.8	430506	EPA 200.8	430597
60219086012	S-LMW-DUP-1	EPA 200.8	430506	EPA 200.8	430597
60219086013	S-LMW-DUP-2	EPA 200.8	430506	EPA 200.8	430597
60219086014	S-LMW-FB-1	EPA 200.8	430506	EPA 200.8	430597
60219086015	S-LMW-FB-2	EPA 200.8	430506	EPA 200.8	430597
60219086001	S-LMW-1S	EPA 7470	431067	EPA 7470	431143
60219086002	S-LMW-2S	EPA 7470	431067	EPA 7470	431143
60219086003	S-LMW-3S	EPA 7470	431067	EPA 7470	431143
60219086004	S-LMW-4S	EPA 7470	431067	EPA 7470	431143
60219086005	S-LMW-5S	EPA 7470	431067	EPA 7470	431143
60219086006	S-LMW-6S	EPA 7470	431067	EPA 7470	431143
60219086007	S-LMW-7S	EPA 7470	431067	EPA 7470	431143
60219086008	S-LMW-8S	EPA 7470	431067	EPA 7470	431143
60219086009	S-LMW-9S	EPA 7470	431067	EPA 7470	431143
60219086010	S-BMW-1S	EPA 7470	431067	EPA 7470	431143
60219086012	S-LMW-DUP-1	EPA 7470	431067	EPA 7470	431143
60219086013	S-LMW-DUP-2	EPA 7470	431067	EPA 7470	431143
60219086014	S-LMW-FB-1	EPA 7470	431067	EPA 7470	431143
60219086015	S-LMW-FB-2	EPA 7470	431067	EPA 7470	431143
60219086001	S-LMW-1S	EPA 903.1	220623		
60219086002	S-LMW-2S	EPA 903.1	220623		
60219086003	S-LMW-3S	EPA 903.1	220623		
60219086004	S-LMW-4S	EPA 903.1	220623		
60219086005	S-LMW-5S	EPA 903.1	220623		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60219086006	S-LMW-6S	EPA 903.1	220623		
60219086007	S-LMW-7S	EPA 903.1	220623		
60219086008	S-LMW-8S	EPA 903.1	220623		
60219086009	S-LMW-9S	EPA 903.1	220623		
60219086010	S-BMW-1S	EPA 903.1	220623		
60219086012	S-LMW-DUP-1	EPA 903.1	220623		
60219086013	S-LMW-DUP-2	EPA 903.1	220623		
60219086014	S-LMW-FB-1	EPA 903.1	220623		
60219086015	S-LMW-FB-2	EPA 903.1	220623		
60219086016	S-LMW-4S MS	EPA 903.1	220623		
60219086017	S-LMW-4S MSD	EPA 903.1	220623		
60219086001	S-LMW-1S	EPA 904.0	220635		
60219086002	S-LMW-2S	EPA 904.0	220635		
60219086003	S-LMW-3S	EPA 904.0	220635		
60219086004	S-LMW-4S	EPA 904.0	220635		
60219086005	S-LMW-5S	EPA 904.0	220635		
60219086006	S-LMW-6S	EPA 904.0	220635		
60219086007	S-LMW-7S	EPA 904.0	220635		
60219086008	S-LMW-8S	EPA 904.0	220635		
60219086009	S-LMW-9S	EPA 904.0	220635		
60219086010	S-BMW-1S	EPA 904.0	220635		
60219086012	S-LMW-DUP-1	EPA 904.0	220635		
60219086013	S-LMW-DUP-2	EPA 904.0	220635		
60219086014	S-LMW-FB-1	EPA 904.0	220635		
60219086015	S-LMW-FB-2	EPA 904.0	220635		
60219086016	S-LMW-4S MS	EPA 904.0	220635		
60219086017	S-LMW-4S MSD	EPA 904.0	220635		
60219086001	S-LMW-1S	SM 2540C	430619		
60219086002	S-LMW-2S	SM 2540C	430619		
60219086003	S-LMW-3S	SM 2540C	430413		
60219086004	S-LMW-4S	SM 2540C	430413		
60219086005	S-LMW-5S	SM 2540C	430413		
60219086006	S-LMW-6S	SM 2540C	431000		
60219086007	S-LMW-7S	SM 2540C	431000		
60219086008	S-LMW-8S	SM 2540C	431000		
60219086009	S-LMW-9S	SM 2540C	430619		
60219086010	S-BMW-1S	SM 2540C	430413		
60219086012	S-LMW-DUP-1	SM 2540C	430413		
60219086013	S-LMW-DUP-2	SM 2540C	430619		
60219086014	S-LMW-FB-1	SM 2540C	430413		
60219086015	S-LMW-FB-2	SM 2540C	431000		
60219086001	S-LMW-1S	SM 4500-H+B	430313		
60219086002	S-LMW-2S	SM 4500-H+B	430385		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60219086003	S-LMW-3S	SM 4500-H+B	430313		
60219086004	S-LMW-4S	SM 4500-H+B	430313		
60219086005	S-LMW-5S	SM 4500-H+B	430313		
60219086006	S-LMW-6S	SM 4500-H+B	430385		
60219086007	S-LMW-7S	SM 4500-H+B	430385		
60219086008	S-LMW-8S	SM 4500-H+B	430385		
60219086009	S-LMW-9S	SM 4500-H+B	430385		
60219086010	S-BMW-1S	SM 4500-H+B	430313		
60219086012	S-LMW-DUP-1	SM 4500-H+B	430313		
60219086013	S-LMW-DUP-2	SM 4500-H+B	430313		
60219086014	S-LMW-FB-1	SM 4500-H+B	430313		
60219086015	S-LMW-FB-2	SM 4500-H+B	430385		
60219086001	S-LMW-1S	EPA 300.0	431972		
60219086001	S-LMW-1S	EPA 300.0	432357		
60219086002	S-LMW-2S	EPA 300.0	431972		
60219086002	S-LMW-2S	EPA 300.0	432357		
60219086003	S-LMW-3S	EPA 300.0	431972		
60219086003	S-LMW-3S	EPA 300.0	432357		
60219086004	S-LMW-4S	EPA 300.0	431972		
60219086004	S-LMW-4S	EPA 300.0	432357		
60219086005	S-LMW-5S	EPA 300.0	431972		
60219086005	S-LMW-5S	EPA 300.0	432357		
60219086006	S-LMW-6S	EPA 300.0	431972		
60219086006	S-LMW-6S	EPA 300.0	432357		
60219086007	S-LMW-7S	EPA 300.0	431972		
60219086007	S-LMW-7S	EPA 300.0	432357		
60219086008	S-LMW-8S	EPA 300.0	431972		
60219086008	S-LMW-8S	EPA 300.0	432357		
60219086009	S-LMW-9S	EPA 300.0	431972		
60219086009	S-LMW-9S	EPA 300.0	432357		
60219086010	S-BMW-1S	EPA 300.0	431972		
60219086010	S-BMW-1S	EPA 300.0	432357		
60219086012	S-LMW-DUP-1	EPA 300.0	431972		
60219086012	S-LMW-DUP-1	EPA 300.0	432357		
60219086013	S-LMW-DUP-2	EPA 300.0	431972		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60219086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60219086013	**S-LMW-DUP-2**	EPA 300.0	432357		
60219086014	**S-LMW-FB-1**	EPA 300.0	431972		
60219086015	**S-LMW-FB-2**	EPA 300.0	431972		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60219086

60219086

Client Name: Golder

Optional
Proj Due Date:
Proj Name:

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

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: CF +1.0 T-239 / CF 0.0 T-262 **Type of Ice:** (Wet) Blue (None) (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 2.6, 13.9, 15.1, 14.8

Date and initials of person examining contents: BB 5/13/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☑No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. pH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): _____	☐Yes ☑No ☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☑N/A	18.

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
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 2

Section A — Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

Section C — Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60219086
1	S-LMW-1S	WT	G			5/10/16	1015		4	1		3							1	1	1	1	2		2BPW BP3N BP3U 001
2	S-LMW-2S	WT	G			↓	1547		1	1		1							1	1	1	1	1		002
3	S-LMW-3S	WT	G			5/9/16	1420		1	1		1							1	1	1	1	1		003
4	S-LMW-4S	WT	G			↓	1251		12	3		9							3	3	3	3	6		6BPW 3BP3N 2.0 3BP3U 004
5	S-LMW-5S	WT	G			↓	1410		4	1		3							1	1	1	1	2		2BPW BP3N 2.0 BP3U 005
6	S-LMW-6S	WT	G			5/11/16	0912		1	1		1							1	1	1	1	1		006
7	S-LMW-7S	WT	G			↓	1010		1	1		1							1	1	1	1	1		007
8	S-LMW-8S	WT	G			↓	1058		1	1		1							1	1	1	1	1		008
9	S-LMW-9S	WT	G			5/10/16	1617		1	1		1							1	1	1	1	1		009
10	S-BMW-1S	WT	G			5/9/16	1017		1	1		1							1	1	1	1	1		010
11	S-BMW-2S	WT	G			↓	1600		1	1		1							1	1	1	1	1		011
12	S-LMW-DUP-1	WT	G			↓	—		1	1		1							1	1	1	1	1		012

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	5/12/16	1600		5/12/16	1600				
	PACE	5/12/16	1730		5/13/16	0830	2.6	Y	Y	Y
							13.9	N	Y	Y
						14.8	15.1	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Snoots

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/12/16

*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
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: 2 of 2

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		
1	S-LMW-DUP-2	WT	G			5/10/16	—		4	1		3							1	1	1	1	2		2BP1N BP2N BP3U 013 014
2	S-LMW-FB-1	WT	G			5/9/16	1358		1	1		1							1	1	1	1	1		
3	S-LMW-FB-2	WT	G			5/11/16	0920		1	1		1							1	1	1	1	1		015
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	5/12/16	1600		5/13/16	1600				
	PACE	5/12/16	1730		5/13/16	0830	2.6	Y	Y	Y
							13.9	N	Y	Y
						14.9	15.1	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Suozzi

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

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

January 02, 2018

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on July 09, 2016. 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, 1/2/18: Revision

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
Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60223195001	**S-LMW-1S**	Water	07/05/16 16:45	07/09/16 04:45
60223195002	**S-LMW-2S**	Water	07/06/16 12:54	07/09/16 04:45
60223195003	**S-LMW-5S**	Water	07/07/16 14:11	07/09/16 04:45
60223195004	**S-LMW-6S**	Water	07/07/16 15:17	07/09/16 04:45
60223195005	**S-BMW-1S**	Water	07/05/16 13:28	07/09/16 04:45
60223195007	**S-LMW-DUP-1**	Water	07/07/16 08:00	07/09/16 04:45
60223195008	**S-LMW-FB-1**	Water	07/07/16 13:40	07/09/16 04:45
60223195009	**S-LMW-1S MS**	Water	07/05/16 16:45	07/09/16 04:45
60223195010	**S-LMW-1S MSD**	Water	07/05/16 16:45	07/09/16 04:45
60223211001	**S-LMW-3S**	Water	07/08/16 14:00	07/09/16 04:45
60223211002	**S-LMW-4S**	Water	07/08/16 14:08	07/09/16 04:45
60223211003	**S-LMW-7S**	Water	07/08/16 09:32	07/09/16 04:45
60223211004	**S-LMW-8S**	Water	07/08/16 10:31	07/09/16 04:45
60223211005	**S-LMW-9S**	Water	07/08/16 11:25	07/09/16 04:45
60223211006	**S-LMW-DUP-2**	Water	07/08/16 08:00	07/09/16 04:45
60223211007	**S-LMW-FB-2**	Water	07/08/16 10:30	07/09/16 04:45

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60223195001	**S-LMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195002	**S-LMW-2S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195003	**S-LMW-5S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195004	**S-LMW-6S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195005	**S-BMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195007	**S-LMW-DUP-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195008	**S-LMW-FB-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223195009	**S-LMW-1S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60223195010	**S-LMW-1S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60223211001	**S-LMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211002	**S-LMW-4S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211003	**S-LMW-7S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211004	**S-LMW-8S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211005	**S-LMW-9S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211006	**S-LMW-DUP-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60223211007	**S-LMW-FB-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	HAC	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-1S **Lab ID: 60223195001** Collected: 07/05/16 16:45 Received: 07/09/16 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								
Barium	**146**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:24	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:24	7440-41-7	
Boron	**932**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:24	7440-42-8	
Calcium	**157000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:24	7440-70-2	
Cobalt	**3.4J**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:24	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:24	7439-92-1	
Lithium	**23.0**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:24	7439-93-2	
Molybdenum	**63.8**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:24	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.35J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 16:48	7440-36-0	
Arsenic	**1.7**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 16:48	7440-38-2	
Cadmium	**0.083J**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 16:48	7440-43-9	
Chromium	**0.51J**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 16:48	7440-47-3	
Selenium	**11.7**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 16:48	7782-49-2	R1
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 16:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**915**	mg/L	5.0	5.0	1		07/11/16 16:08		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		07/11/16 11:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**26.0**	mg/L	2.0	1.0	2		07/23/16 14:26	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.073	1		07/20/16 16:05	16984-48-8	
Sulfate	**431**	mg/L	50.0	12.4	50		07/23/16 14:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-2S **Lab ID: 60223195002** Collected: 07/06/16 12:54 Received: 07/09/16 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								
Barium	**130**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:35	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:35	7440-41-7	
Boron	**12200**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:35	7440-42-8	
Calcium	**169000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:35	7440-70-2	
Cobalt	**3.6J**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:35	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:35	7439-92-1	
Lithium	**32.3**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:35	7439-93-2	
Molybdenum	**1500**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:35	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.13J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:04	7440-36-0	
Arsenic	**1.3**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:04	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:04	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:04	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:04	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:16	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**980**	mg/L	5.0	5.0	1		07/12/16 11:25		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		07/12/16 09:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**87.8**	mg/L	10.0	5.0	10		07/23/16 15:22	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.073	1		07/20/16 17:04	16984-48-8	
Sulfate	**260**	mg/L	20.0	5.0	20		07/23/16 15:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-5S **Lab ID: 60223195003** Collected: 07/07/16 14:11 Received: 07/09/16 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								
Barium	**77.4**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:38	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:38	7440-41-7	
Boron	**11800**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:38	7440-42-8	
Calcium	**268000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:38	7440-70-2	M1
Cobalt	**1.0J**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:38	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:38	7439-92-1	
Lithium	**60.8**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:38	7439-93-2	
Molybdenum	**497**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:38	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:07	7440-36-0	
Arsenic	**0.60J**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:07	7440-38-2	
Cadmium	**2.1**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:07	7440-43-9	
Chromium	**0.40J**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:07	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:07	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:19	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1620**	mg/L	5.0	5.0	1		07/12/16 14:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**31.0**	mg/L	2.0	1.0	2		07/23/16 16:19	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.073	1		07/20/16 17:18	16984-48-8	
Sulfate	**790**	mg/L	100	24.8	100		07/23/16 16:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-6S **Lab ID: 60223195004** Collected: 07/07/16 15:17 Received: 07/09/16 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								
Barium	**44.3**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:40	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:40	7440-41-7	
Boron	**13400**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:40	7440-42-8	
Calcium	**283000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:40	7440-70-2	
Cobalt	**6.9**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:40	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:40	7439-92-1	
Lithium	**24.1**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:40	7439-93-2	
Molybdenum	**1.3J**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:40	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.19J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:10	7440-36-0	
Arsenic	**0.70J**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:10	7440-38-2	
Cadmium	**1.6**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:10	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:10	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:10	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:10	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:21	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1680**	mg/L	5.0	5.0	1		07/12/16 14:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.1**	mg/L	1.0	0.50	1		07/20/16 17:33	16887-00-6	
Fluoride	**0.17J**	mg/L	0.20	0.073	1		07/20/16 17:33	16984-48-8	
Sulfate	**858**	mg/L	100	24.8	100		07/23/16 16:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-BMW-1S **Lab ID: 60223195005** Collected: 07/05/16 13:28 Received: 07/09/16 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								
Barium	**137**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:42	7440-39-3	M1
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:42	7440-41-7	M1
Boron	**93.0J**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:42	7440-42-8	M1
Calcium	**140000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:42	7440-70-2	M1
Cobalt	**<0.72**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:42	7440-48-4	M1
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:42	7439-92-1	M1
Lithium	**5.0J**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:42	7439-93-2	M1
Molybdenum	**2.5J**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:42	7439-98-7	M1
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.063J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:13	7440-36-0	
Arsenic	**0.88J**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:13	7440-38-2	
Cadmium	**0.095J**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:13	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:13	7440-47-3	
Selenium	**0.25J**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:13	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:13	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**526**	mg/L	5.0	5.0	1		07/11/16 16:10		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		07/11/16 11:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.7**	mg/L	1.0	0.50	1		07/20/16 17:48	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.073	1		07/20/16 17:48	16984-48-8	
Sulfate	**30.2**	mg/L	2.0	0.50	2		07/23/16 17:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-DUP-1 **Lab ID: 60223195007** Collected: 07/07/16 08:00 Received: 07/09/16 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								
Barium	**42.9**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:49	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:49	7440-41-7	
Boron	**13100**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:49	7440-42-8	
Calcium	**280000**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:49	7440-70-2	
Cobalt	**7.4**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:49	7440-48-4	
Lead	**2.5J**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:49	7439-92-1	
Lithium	**23.2**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:49	7439-93-2	
Molybdenum	**1.1J**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:49	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:22	7440-36-0	
Arsenic	**0.62J**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:22	7440-38-2	
Cadmium	**0.85**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:22	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:22	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:22	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:22	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1730**	mg/L	5.0	5.0	1		07/12/16 14:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		07/12/16 09:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.3**	mg/L	1.0	0.50	1		07/20/16 18:17	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.073	1		07/20/16 18:17	16984-48-8	
Sulfate	**840**	mg/L	100	24.8	100		07/23/16 17:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-FB-1 **Lab ID: 60223195008** Collected: 07/07/16 13:40 Received: 07/09/16 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	07/12/16 15:50	07/15/16 16:51	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/12/16 15:50	07/15/16 16:51	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	07/12/16 15:50	07/15/16 16:51	7440-42-8	
Calcium	**72.0J**	ug/L	100	8.1	1	07/12/16 15:50	07/15/16 16:51	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	07/12/16 15:50	07/15/16 16:51	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/12/16 15:50	07/15/16 16:51	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	07/12/16 15:50	07/15/16 16:51	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	07/12/16 15:50	07/15/16 16:51	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	07/12/16 15:50	07/21/16 17:25	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	07/12/16 15:50	07/21/16 17:25	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	07/12/16 15:50	07/21/16 17:25	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/12/16 15:50	07/21/16 17:25	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/12/16 15:50	07/21/16 17:25	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/12/16 15:50	07/21/16 17:25	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 10:30	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		07/12/16 14:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.0**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		07/20/16 18:32	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		07/20/16 18:32	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		07/20/16 18:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-3S **Lab ID: 60223211001** Collected: 07/08/16 14:00 Received: 07/09/16 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								
Barium	**110**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:14	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:14	7440-41-7	
Boron	**230**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:14	7440-42-8	
Calcium	**120000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:14	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:14	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:14	7439-92-1	
Lithium	**19.9**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:14	7439-93-2	
Molybdenum	**2.0J**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:14	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 18:57	7440-36-0	
Arsenic	**0.42J**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 18:57	7440-38-2	
Cadmium	**0.054J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 18:57	7440-43-9	
Chromium	**0.79J**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 18:57	7440-47-3	
Selenium	**2.2**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 18:57	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 18:57	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**512**	mg/L	5.0	5.0	1		07/15/16 12:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.9**	mg/L	1.0	0.50	1		07/21/16 00:40	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.073	1		07/21/16 00:40	16984-48-8	
Sulfate	**34.1**	mg/L	5.0	1.2	5		07/24/16 02:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-4S **Lab ID: 60223211002** Collected: 07/08/16 14:08 Received: 07/09/16 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								
Barium	**196**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:16	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:16	7440-41-7	
Boron	**160**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:16	7440-42-8	
Calcium	**132000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:16	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:16	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:16	7439-92-1	
Lithium	**21.6**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:16	7439-93-2	
Molybdenum	**3.4J**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:16	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.14J**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:01	7440-36-0	
Arsenic	**0.47J**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:01	7440-38-2	
Cadmium	**0.11J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:01	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:01	7440-47-3	
Selenium	**4.4**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:01	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:34	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**593**	mg/L	5.0	5.0	1		07/15/16 12:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.1**	mg/L	1.0	0.50	1		07/21/16 00:54	16887-00-6	
Fluoride	**0.18J**	mg/L	0.20	0.073	1		07/21/16 00:54	16984-48-8	
Sulfate	**25.0**	mg/L	2.0	0.50	2		07/24/16 02:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-7S **Lab ID: 60223211003** Collected: 07/08/16 09:32 Received: 07/09/16 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								
Barium	**114**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:19	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:19	7440-41-7	
Boron	**1430**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:19	7440-42-8	
Calcium	**203000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:19	7440-70-2	
Cobalt	**2.9J**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:19	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:19	7439-92-1	
Lithium	**21.5**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:19	7439-93-2	
Molybdenum	**2.9J**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:19	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:04	7440-36-0	
Arsenic	**0.29J**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:04	7440-38-2	
Cadmium	**0.26J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:04	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:04	7440-47-3	
Selenium	**0.54J**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:04	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1020**	mg/L	5.0	5.0	1		07/15/16 12:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.1**	mg/L	1.0	0.50	1		07/21/16 01:38	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.073	1		07/21/16 01:38	16984-48-8	
Sulfate	**313**	mg/L	50.0	12.4	50		07/24/16 02:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-8S **Lab ID: 60223211004** Collected: 07/08/16 10:31 Received: 07/09/16 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								
Barium	**88.8**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:21	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:21	7440-41-7	
Boron	**4810**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:21	7440-42-8	
Calcium	**142000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:21	7440-70-2	
Cobalt	**3.1J**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:21	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:21	7439-92-1	
Lithium	**21.2**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:21	7439-93-2	
Molybdenum	**89.6**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:21	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.59J**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:07	7440-36-0	
Arsenic	**1.0**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:07	7440-38-2	
Cadmium	**0.050J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:07	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:07	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:07	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:39	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**877**	mg/L	5.0	5.0	1		07/15/16 12:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.8**	mg/L	5.0	2.5	5		07/24/16 03:36	16887-00-6	
Fluoride	**0.97**	mg/L	0.20	0.073	1		07/21/16 01:53	16984-48-8	
Sulfate	**361**	mg/L	50.0	12.4	50		07/24/16 03:50	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-9S **Lab ID: 60223211005** Collected: 07/08/16 11:25 Received: 07/09/16 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								
Barium	**73.6**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:23	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:23	7440-41-7	
Boron	**1270**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:23	7440-42-8	
Calcium	**215000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:23	7440-70-2	
Cobalt	**10.3**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:23	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:23	7439-92-1	
Lithium	**45.6**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:23	7439-93-2	
Molybdenum	**6.9J**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:23	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:10	7440-36-0	
Arsenic	**2.2**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:10	7440-38-2	
Cadmium	**0.060J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:10	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:10	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:10	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:10	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:41	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1220**	mg/L	5.0	5.0	1		07/15/16 12:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		07/12/16 10:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**81.1**	mg/L	10.0	5.0	10		07/24/16 04:04	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.073	1		07/21/16 02:08	16984-48-8	
Sulfate	**320**	mg/L	50.0	12.4	50		07/24/16 04:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-DUP-2 **Lab ID: 60223211006** Collected: 07/08/16 08:00 Received: 07/09/16 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								
Barium	**112**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:28	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:28	7440-41-7	
Boron	**1450**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:28	7440-42-8	
Calcium	**212000**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:28	7440-70-2	
Cobalt	**2.8J**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:28	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:28	7439-92-1	
Lithium	**21.7**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:28	7439-93-2	
Molybdenum	**3.2J**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:28	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:13	7440-36-0	
Arsenic	**0.25J**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:13	7440-38-2	
Cadmium	**0.28J**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:13	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:13	7440-47-3	
Selenium	**0.54J**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:13	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:13	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:43	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1040**	mg/L	5.0	5.0	1		07/15/16 12:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		07/13/16 11:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.3**	mg/L	1.0	0.50	1		07/24/16 12:22	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.073	1		07/24/16 12:22	16984-48-8	
Sulfate	**303**	mg/L	20.0	5.0	20		07/24/16 16:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-FB-2 **Lab ID: 60223211007** Collected: 07/08/16 10:30 Received: 07/09/16 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	07/15/16 15:45	07/18/16 13:30	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	07/15/16 15:45	07/18/16 13:30	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	07/15/16 15:45	07/18/16 13:30	7440-42-8	
Calcium	**58.5J**	ug/L	100	8.1	1	07/15/16 15:45	07/18/16 13:30	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	07/15/16 15:45	07/18/16 13:30	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	07/15/16 15:45	07/18/16 13:30	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	07/15/16 15:45	07/18/16 13:30	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	07/15/16 15:45	07/18/16 13:30	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	07/15/16 15:45	07/21/16 19:16	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	07/15/16 15:45	07/21/16 19:16	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	07/15/16 15:45	07/21/16 19:16	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	07/15/16 15:45	07/21/16 19:16	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	07/15/16 15:45	07/21/16 19:16	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	07/15/16 15:45	07/21/16 19:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	07/11/16 16:00	07/12/16 11:45	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**6.0**	mg/L	5.0	5.0	1		07/15/16 12:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.1**	Std. Units	0.10	0.10	1		07/13/16 11:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		07/24/16 12:51	16887-00-6	
Fluoride	**<0.073**	mg/L	0.20	0.073	1		07/24/16 12:51	16984-48-8	
Sulfate	**<0.25**	mg/L	1.0	0.25	1		07/24/16 12:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438034 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

METHOD BLANK: 1791509 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	07/12/16 09:45	

LABORATORY CONTROL SAMPLE: 1791510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.7	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1791511 1791512

Parameter	Units	60223195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	4.8	5.0	96	101	75-125	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1791513 1791514

Parameter	Units	60223196001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.3	5.8	106	115	75-125	9	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438036 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1791515 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	07/12/16 10:50	

LABORATORY CONTROL SAMPLE: 1791516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1791517 1791518

Parameter	Units	60223199002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.1	4.9	102	98	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438181 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

METHOD BLANK: 1792061 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	07/15/16 16:04	
Beryllium	ug/L	<0.26	1.0	0.26	07/15/16 16:04	
Boron	ug/L	<50.0	100	50.0	07/15/16 16:04	
Calcium	ug/L	11.3J	100	8.1	07/15/16 16:04	
Cobalt	ug/L	<0.72	5.0	0.72	07/15/16 16:04	
Lead	ug/L	<2.5	5.0	2.5	07/15/16 16:04	
Lithium	ug/L	<4.9	10.0	4.9	07/15/16 16:04	
Molybdenum	ug/L	<0.52	20.0	0.52	07/15/16 16:04	

LABORATORY CONTROL SAMPLE: 1792062

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1060	106	85-115	
Beryllium	ug/L	1000	971	97	85-115	
Boron	ug/L	1000	966	97	85-115	
Calcium	ug/L	10000	9290	93	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Lead	ug/L	1000	1020	102	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1070	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1792063 1792064

Parameter	Units	60223195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	146	1000	1000	1190	1190	104	104	70-130	0	20	
Beryllium	ug/L	<0.26	1000	1000	960	983	96	98	70-130	2	20	
Boron	ug/L	932	1000	1000	1920	1990	99	106	70-130	3	20	
Calcium	ug/L	157000	10000	10000	165000	165000	76	78	70-130	0	20	
Cobalt	ug/L	3.4J	1000	1000	996	1010	99	101	70-130	2	20	
Lead	ug/L	<2.5	1000	1000	986	1010	98	101	70-130	2	20	
Lithium	ug/L	23.0	1000	1000	1060	1060	104	104	70-130	1	20	
Molybdenum	ug/L	63.8	1000	1000	1140	1150	108	109	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

MATRIX SPIKE SAMPLE: 1795267

Parameter	Units	60223195003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	77.4	1000	1020	94	70-130	
Beryllium	ug/L	<0.26	1000	995	100	70-130	
Boron	ug/L	11800	1000	12500	75	70-130	
Calcium	ug/L	268000	10000	301000	333	70-130	M1
Cobalt	ug/L	1.0J	1000	951	95	70-130	
Lead	ug/L	<2.5	1000	971	97	70-130	
Lithium	ug/L	60.8	1000	1040	98	70-130	
Molybdenum	ug/L	497	1000	1500	100	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438661 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1794268 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	07/18/16 13:10	
Beryllium	ug/L	<0.26	1.0	0.26	07/18/16 13:10	
Boron	ug/L	<50.0	100	50.0	07/18/16 13:10	
Calcium	ug/L	13.4J	100	8.1	07/18/16 13:10	
Cobalt	ug/L	<0.72	5.0	0.72	07/18/16 13:10	
Lead	ug/L	<2.5	5.0	2.5	07/18/16 13:10	
Lithium	ug/L	<4.9	10.0	4.9	07/18/16 13:10	
Molybdenum	ug/L	<0.52	20.0	0.52	07/18/16 13:10	

LABORATORY CONTROL SAMPLE: 1794269

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	930	93	85-115	
Beryllium	ug/L	1000	965	97	85-115	
Boron	ug/L	1000	928	93	85-115	
Calcium	ug/L	10000	9540	95	85-115	
Cobalt	ug/L	1000	954	95	85-115	
Lead	ug/L	1000	983	98	85-115	
Lithium	ug/L	1000	954	95	85-115	
Molybdenum	ug/L	1000	994	99	85-115	

MATRIX SPIKE SAMPLE: 1794270

Parameter	Units	60223211005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	73.6	1000	1010	94	70-130	
Beryllium	ug/L	<0.26	1000	971	97	70-130	
Boron	ug/L	1270	1000	2230	95	70-130	
Calcium	ug/L	215000	10000	227000	125	70-130	
Cobalt	ug/L	10.3	1000	939	93	70-130	
Lead	ug/L	<2.5	1000	955	95	70-130	
Lithium	ug/L	45.6	1000	1020	98	70-130	
Molybdenum	ug/L	6.9J	1000	1010	100	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1794271 1794272

Parameter	Units	60223484002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	178	1000	1000	1100	1100	93	92	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	976	970	98	97	70-130	1	20	
Boron	ug/L	88.8J	1000	1000	1040	1030	95	94	70-130	1	20	
Calcium	ug/L	168000	10000	10000	182000	179000	141	108	70-130	2	20	M1
Cobalt	ug/L	2.0J	1000	1000	926	921	92	92	70-130	0	20	
Lead	ug/L	<2.5	1000	1000	950	944	95	94	70-130	1	20	
Lithium	ug/L	43.0	1000	1000	999	997	96	95	70-130	0	20	
Molybdenum	ug/L	1.2J	1000	1000	989	986	99	98	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438182 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

METHOD BLANK: 1792066 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	07/21/16 16:21	
Arsenic	ug/L	<0.10	1.0	0.10	07/21/16 16:21	
Cadmium	ug/L	<0.029	0.50	0.029	07/21/16 16:21	
Chromium	ug/L	<0.34	1.0	0.34	07/21/16 16:21	
Selenium	ug/L	<0.18	1.0	0.18	07/21/16 16:21	
Thallium	ug/L	<0.50	1.0	0.50	07/21/16 16:21	

LABORATORY CONTROL SAMPLE: 1792067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.3	103	85-115	
Arsenic	ug/L	40	41.5	104	85-115	
Cadmium	ug/L	40	41.4	103	85-115	
Chromium	ug/L	40	41.9	105	85-115	
Selenium	ug/L	40	39.8	100	85-115	
Thallium	ug/L	40	37.6	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1792068 1792069

Parameter	Units	60223195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.35J	40	40	44.0	41.6	109	103	70-130	5	20	
Arsenic	ug/L	1.7	40	40	49.3	42.9	119	103	70-130	14	20	
Cadmium	ug/L	0.083J	40	40	42.7	39.5	106	99	70-130	8	20	
Chromium	ug/L	0.51J	40	40	41.9	41.5	104	102	70-130	1	20	
Selenium	ug/L	11.7	40	40	63.6	50.0	130	96	70-130	24	20	R1
Thallium	ug/L	<0.50	40	40	38.8	39.9	97	100	70-130	3	20	

MATRIX SPIKE SAMPLE: 1792070

Parameter	Units	60223195005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.063J	40	40.8	102	70-130	
Arsenic	ug/L	0.88J	40	41.8	102	70-130	
Cadmium	ug/L	0.095J	40	40.1	100	70-130	
Chromium	ug/L	<0.34	40	40.9	102	70-130	
Selenium	ug/L	0.25J	40	37.9	94	70-130	
Thallium	ug/L	<0.50	40	38.8	97	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438662 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1794273 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	07/21/16 18:48	
Arsenic	ug/L	<0.10	1.0	0.10	07/21/16 18:48	
Cadmium	ug/L	<0.029	0.50	0.029	07/21/16 18:48	
Chromium	ug/L	<0.34	1.0	0.34	07/21/16 18:48	
Selenium	ug/L	<0.18	1.0	0.18	07/21/16 18:48	
Thallium	ug/L	<0.50	1.0	0.50	07/21/16 18:48	

LABORATORY CONTROL SAMPLE: 1794274

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	42.0	105	85-115	
Arsenic	ug/L	40	41.8	105	85-115	
Cadmium	ug/L	40	41.5	104	85-115	
Chromium	ug/L	40	41.9	105	85-115	
Selenium	ug/L	40	40.7	102	85-115	
Thallium	ug/L	40	36.8	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1794275 1794276

Parameter	Units	60223484002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.058	40	40	40.8	40.8	102	102	70-130	0	20	
Arsenic	ug/L	1.1	40	40	41.7	41.6	101	101	70-130	0	20	
Cadmium	ug/L	<0.029	40	40	39.1	38.9	98	97	70-130	1	20	
Chromium	ug/L	<0.34	40	40	40.4	39.9	101	100	70-130	1	20	
Selenium	ug/L	<0.18	40	40	37.4	37.7	93	94	70-130	1	20	
Thallium	ug/L	<0.50	40	40	38.0	37.9	95	95	70-130	0	20	

MATRIX SPIKE SAMPLE: 1794277

Parameter	Units	60223484005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.063J	40	41.5	104	70-130	
Arsenic	ug/L	1.4	40	42.2	102	70-130	
Cadmium	ug/L	0.045J	40	39.4	98	70-130	
Chromium	ug/L	0.52J	40	40.8	101	70-130	
Selenium	ug/L	1.3	40	39.0	94	70-130	
Thallium	ug/L	<0.50	40	37.9	95	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438032 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60223195001, 60223195005

METHOD BLANK: 1791505 Matrix: Water
Associated Lab Samples: 60223195001, 60223195005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/11/16 16:06	

LABORATORY CONTROL SAMPLE: 1791506

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

SAMPLE DUPLICATE: 1791507

Parameter	Units	60223195001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	915	911	0	10	

SAMPLE DUPLICATE: 1791508

Parameter	Units	60223196001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	376	373	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438067 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60223195002

METHOD BLANK: 1791590 Matrix: Water
Associated Lab Samples: 60223195002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/12/16 10:58	

LABORATORY CONTROL SAMPLE: 1791591

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	989	99	80-120	

SAMPLE DUPLICATE: 1791592

Parameter	Units	60222927001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	18700	20000	7	10	

SAMPLE DUPLICATE: 1791593

Parameter	Units	60223049001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	980	975	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438069 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60223195003, 60223195004, 60223195007, 60223195008

METHOD BLANK: 1791598 Matrix: Water
Associated Lab Samples: 60223195003, 60223195004, 60223195007, 60223195008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/12/16 14:08	

LABORATORY CONTROL SAMPLE: 1791599

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

SAMPLE DUPLICATE: 1791600

Parameter	Units	60223065001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	385	388	1	10	

SAMPLE DUPLICATE: 1791601

Parameter	Units	60223199002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	489	497	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438659 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1794258 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	07/15/16 11:50	

LABORATORY CONTROL SAMPLE: 1794259

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

SAMPLE DUPLICATE: 1794260

Parameter	Units	60223185001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4850	4870	0	10	

SAMPLE DUPLICATE: 1794262

Parameter	Units	60223185013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1740	1750	0	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 437868
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60223195001, 60223195005

SAMPLE DUPLICATE: 1791140

Parameter	Units	60223195001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.4	0	5	H6

SAMPLE DUPLICATE: 1791141

Parameter	Units	60223196001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	7.6	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 437870 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60223195002, 60223195007

SAMPLE DUPLICATE: 1791144

Parameter	Units	60222963003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 437871 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60223195003, 60223195004, 60223195008, 60223211001, 60223211002, 60223211003, 60223211004, 60223211005

SAMPLE DUPLICATE: 1791145

Parameter	Units	60223199002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.2	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 438481 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60223211006, 60223211007

SAMPLE DUPLICATE: 1793250

Parameter	Units	60223219001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 439322 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

METHOD BLANK: 1796767 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/20/16 12:54	
Fluoride	mg/L	<0.027	0.20	0.027	07/20/16 12:54	
Sulfate	mg/L	<0.15	1.0	0.15	07/20/16 12:54	

LABORATORY CONTROL SAMPLE: 1796768

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	2.3	94	90-110	
Sulfate	mg/L	5	4.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1796769 1796770

Parameter	Units	60223187001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.30	2.5	2.5	2.7	2.7	94	96	80-120	2	15	

MATRIX SPIKE SAMPLE: 1796771

Parameter	Units	60223195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.21	2.5	2.5	92	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 439323 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005

METHOD BLANK: 1796773 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/20/16 18:47	
Fluoride	mg/L	<0.027	0.20	0.027	07/20/16 18:47	

LABORATORY CONTROL SAMPLE: 1796774

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1796775 1796776

Parameter	Units	60223196001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.22	2.5	2.5	2.5	2.6	93	96	80-120	3	15	

MATRIX SPIKE SAMPLE: 1796777

Parameter	Units	60223199002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.5	5	12.2	94	80-120	
Fluoride	mg/L	0.28	2.5	2.6	94	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 439702 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007

METHOD BLANK: 1798939 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/23/16 08:56	
Sulfate	mg/L	<0.15	1.0	0.15	07/23/16 08:56	

LABORATORY CONTROL SAMPLE: 1798940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1798941 1798942

Parameter	Units	60223187001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	44.2	25	25	69.7	68.6	102	98	80-120	2	15	
Sulfate	mg/L	61.0	25	25	85.2	84.7	97	95	80-120	1	15	

MATRIX SPIKE SAMPLE: 1798943

Parameter	Units	60223195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	26.0	10	35.1	91	80-120	
Sulfate	mg/L	431	250	677	98	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 439703 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005

METHOD BLANK: 1798953 Matrix: Water
Associated Lab Samples: 60223211001, 60223211002, 60223211003, 60223211004, 60223211005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/23/16 17:58	
Sulfate	mg/L	<0.15	1.0	0.15	07/23/16 17:58	

LABORATORY CONTROL SAMPLE: 1798954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.7	97	90-110	
Sulfate	mg/L	10	9.6	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1798955 1798956

Parameter	Units	60223196001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21.2	10	10	30.5	30.1	93	89	80-120	1	15	
Sulfate	mg/L	65.1	25	25	89.3	89.0	97	96	80-120	0	15	

MATRIX SPIKE SAMPLE: 1798957

Parameter	Units	60223199002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.5		31.2			
Sulfate	mg/L	36.5	25	61.0	98	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 439704 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60223211006, 60223211007

METHOD BLANK: 1798971 Matrix: Water
Associated Lab Samples: 60223211006, 60223211007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/24/16 09:48	
Fluoride	mg/L	<0.027	0.20	0.027	07/24/16 09:48	
Sulfate	mg/L	<0.15	1.0	0.15	07/24/16 09:48	

LABORATORY CONTROL SAMPLE: 1798972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1798973 1798974

Parameter	Units	60223710001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.4	5	5	7.3	6.9	99	91	80-120	5	15	
Fluoride	mg/L	0.12J	2.5	2.5	2.7	2.5	103	95	80-120	8	15	
Sulfate	mg/L	15.8	5	5	20.9	20.4	102	92	80-120	2	15	

MATRIX SPIKE SAMPLE: 1798975

Parameter	Units	60223711001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	398J	2500	2660	90	80-120	
Fluoride	mg/L	<36.4	1250	1280	102	80-120	
Sulfate	mg/L	2880	2500	5780	116	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-1S **Lab ID: 60223195001** Collected: 07/05/16 16:45 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.369 (0.595) C:NA T:88%**	pCi/L	08/03/16 22:57	13982-63-3	
Radium-228	EPA 904.0	**0.966 ± 0.543 (0.977) C:69% T:84%**	pCi/L	08/02/16 15:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-2S **Lab ID: 60223195002** Collected: 07/06/16 12:54 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.178 ± 0.469 (0.838) C:NA T:87%**	pCi/L	08/03/16 22:46	13982-63-3	
Radium-228	EPA 904.0	**0.697 ± 0.466 (0.875) C:71% T:88%**	pCi/L	08/02/16 15:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-5S **Lab ID: 60223195003** Collected: 07/07/16 14:11 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.142 ± 0.324 (0.521) C:NA T:91%**	pCi/L	08/03/16 22:46	13982-63-3	
Radium-228	EPA 904.0	**0.292 ± 0.435 (0.918) C:70% T:88%**	pCi/L	08/02/16 15:38	15262-20-1	

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-6S **Lab ID: 60223195004** Collected: 07/07/16 15:17 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.231 ± 0.352 (0.567) C:NA T:85%**	pCi/L	08/03/16 22:47	13982-63-3	
Radium-228	EPA 904.0	**0.770 ± 0.490 (0.903) C:70% T:81%**	pCi/L	08/02/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-BMW-1S **Lab ID: 60223195005** Collected: 07/05/16 13:28 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.228 ± 0.365 (0.826) C:NA T:96%**	pCi/L	08/03/16 23:30	13982-63-3	
Radium-228	EPA 904.0	**0.233 ± 0.470 (1.01) C:65% T:76%**	pCi/L	08/02/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-DUP-1 **Lab ID: 60223195007** Collected: 07/07/16 08:00 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.140 ± 0.320 (0.516) C:NA T:91%**	pCi/L	08/03/16 23:30	13982-63-3	
Radium-228	EPA 904.0	**0.417 ± 0.491 (1.01) C:65% T:87%**	pCi/L	08/02/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-FB-1 **Lab ID: 60223195008** Collected: 07/07/16 13:40 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.097 ± 0.463 (0.938) C:NA T:83%**	pCi/L	08/03/16 23:43	13982-63-3	
Radium-228	EPA 904.0	**0.495 ± 0.304 (0.556) C:78% T:89%**	pCi/L	08/02/16 20:11	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-1S MS **Lab ID: 60223195009** Collected: 07/05/16 16:45 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**94.6 %REC ± NA (NA) C:NA T:NA**	pCi/L	08/03/16 23:16	13982-63-3	
Radium-228	EPA 904.0	**87.8 %REC ± NA (NA) C:NA T:NA**	pCi/L	08/02/16 20:11	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-1S MSD **Lab ID: 60223195010** Collected: 07/05/16 16:45 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**108 %REC 13.5 RPD ± NA (NA) C:NA T:NA**	pCi/L	08/03/16 23:42	13982-63-3	
Radium-228	EPA 904.0	**90.5 %REC 3.02 RPD ± NA (NA) C:NA T:NA**	pCi/L	08/02/16 20:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-3S **Lab ID: 60223211001** Collected: 07/08/16 14:00 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.152 ± 0.347 (0.560) C:NA T:87%**	pCi/L	08/03/16 23:58	13982-63-3	
Radium-228	EPA 904.0	**0.686 ± 0.408 (0.753) C:75% T:83%**	pCi/L	08/02/16 20:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-4S **Lab ID: 60223211002** Collected: 07/08/16 14:08 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.338 (0.546) C:NA T:86%**	pCi/L	08/03/16 23:41	13982-63-3	
Radium-228	EPA 904.0	**0.289 ± 0.382 (0.799) C:78% T:86%**	pCi/L	08/02/16 20:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-7S **Lab ID: 60223211003** Collected: 07/08/16 09:32 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.411 ± 0.468 (0.738) C:NA T:91%**	pCi/L	08/03/16 23:31	13982-63-3	
Radium-228	EPA 904.0	**1.02 ± 0.445 (0.731) C:74% T:85%**	pCi/L	08/02/16 20:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-8S **Lab ID: 60223211004** Collected: 07/08/16 10:31 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.585 ± 0.548 (0.776) C:NA T:76%**	pCi/L	08/03/16 23:29	13982-63-3	
Radium-228	EPA 904.0	**0.892 ± 0.489 (0.882) C:76% T:76%**	pCi/L	08/02/16 20:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-9S **Lab ID: 60223211005** Collected: 07/08/16 11:25 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.207 ± 0.358 (0.640) C:NA T:87%**	pCi/L	08/03/16 23:59	13982-63-3	
Radium-228	EPA 904.0	**0.438 ± 0.375 (0.745) C:77% T:85%**	pCi/L	08/02/16 20:13	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-DUP-2 **Lab ID: 60223211006** Collected: 07/08/16 08:00 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.229 ± 0.396 (0.708) C:NA T:86%**	pCi/L	08/04/16 00:09	13982-63-3	
Radium-228	EPA 904.0	**0.414 ± 0.349 (0.692) C:77% T:86%**	pCi/L	08/02/16 20:13	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Sample: S-LMW-FB-2 **Lab ID: 60223211007** Collected: 07/08/16 10:30 Received: 07/09/16 04:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.318 (0.648) C:NA T:88%**	pCi/L	08/03/16 23:58	13982-63-3	
Radium-228	EPA 904.0	**0.287 ± 0.323 (0.664) C:74% T:87%**	pCi/L	08/02/16 20:13	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 227780 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008, 60223195009, 60223195010, 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1115889 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008, 60223195009, 60223195010, 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0123 ± 0.433 (0.985) C:69% T:80%	pCi/L	08/02/16 15:38	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

QC Batch: 227862 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008, 60223195009, 60223195010, 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

METHOD BLANK: 1116131 Matrix: Water
Associated Lab Samples: 60223195001, 60223195002, 60223195003, 60223195004, 60223195005, 60223195007, 60223195008, 60223195009, 60223195010, 60223211001, 60223211002, 60223211003, 60223211004, 60223211005, 60223211006, 60223211007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.168 ± 0.467 (0.906) C:NA T:84%	pCi/L	08/03/16 13:42	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60223195001	**S-LMW-1S**	EPA 200.7	438181	EPA 200.7	438270
60223195002	**S-LMW-2S**	EPA 200.7	438181	EPA 200.7	438270
60223195003	**S-LMW-5S**	EPA 200.7	438181	EPA 200.7	438270
60223195004	**S-LMW-6S**	EPA 200.7	438181	EPA 200.7	438270
60223195005	**S-BMW-1S**	EPA 200.7	438181	EPA 200.7	438270
60223195007	**S-LMW-DUP-1**	EPA 200.7	438181	EPA 200.7	438270
60223195008	**S-LMW-FB-1**	EPA 200.7	438181	EPA 200.7	438270
60223211001	**S-LMW-3S**	EPA 200.7	438661	EPA 200.7	438770
60223211002	**S-LMW-4S**	EPA 200.7	438661	EPA 200.7	438770
60223211003	**S-LMW-7S**	EPA 200.7	438661	EPA 200.7	438770
60223211004	**S-LMW-8S**	EPA 200.7	438661	EPA 200.7	438770
60223211005	**S-LMW-9S**	EPA 200.7	438661	EPA 200.7	438770
60223211006	**S-LMW-DUP-2**	EPA 200.7	438661	EPA 200.7	438770
60223211007	**S-LMW-FB-2**	EPA 200.7	438661	EPA 200.7	438770
60223195001	**S-LMW-1S**	EPA 200.8	438182	EPA 200.8	438271
60223195002	**S-LMW-2S**	EPA 200.8	438182	EPA 200.8	438271
60223195003	**S-LMW-5S**	EPA 200.8	438182	EPA 200.8	438271
60223195004	**S-LMW-6S**	EPA 200.8	438182	EPA 200.8	438271
60223195005	**S-BMW-1S**	EPA 200.8	438182	EPA 200.8	438271
60223195007	**S-LMW-DUP-1**	EPA 200.8	438182	EPA 200.8	438271
60223195008	**S-LMW-FB-1**	EPA 200.8	438182	EPA 200.8	438271
60223211001	**S-LMW-3S**	EPA 200.8	438662	EPA 200.8	438771
60223211002	**S-LMW-4S**	EPA 200.8	438662	EPA 200.8	438771
60223211003	**S-LMW-7S**	EPA 200.8	438662	EPA 200.8	438771
60223211004	**S-LMW-8S**	EPA 200.8	438662	EPA 200.8	438771
60223211005	**S-LMW-9S**	EPA 200.8	438662	EPA 200.8	438771
60223211006	**S-LMW-DUP-2**	EPA 200.8	438662	EPA 200.8	438771
60223211007	**S-LMW-FB-2**	EPA 200.8	438662	EPA 200.8	438771
60223195001	**S-LMW-1S**	EPA 7470	438034	EPA 7470	438049
60223195002	**S-LMW-2S**	EPA 7470	438034	EPA 7470	438049
60223195003	**S-LMW-5S**	EPA 7470	438034	EPA 7470	438049
60223195004	**S-LMW-6S**	EPA 7470	438034	EPA 7470	438049
60223195005	**S-BMW-1S**	EPA 7470	438034	EPA 7470	438049
60223195007	**S-LMW-DUP-1**	EPA 7470	438034	EPA 7470	438049
60223195008	**S-LMW-FB-1**	EPA 7470	438034	EPA 7470	438049
60223211001	**S-LMW-3S**	EPA 7470	438036	EPA 7470	438050
60223211002	**S-LMW-4S**	EPA 7470	438036	EPA 7470	438050
60223211003	**S-LMW-7S**	EPA 7470	438036	EPA 7470	438050
60223211004	**S-LMW-8S**	EPA 7470	438036	EPA 7470	438050
60223211005	**S-LMW-9S**	EPA 7470	438036	EPA 7470	438050
60223211006	**S-LMW-DUP-2**	EPA 7470	438036	EPA 7470	438050
60223211007	**S-LMW-FB-2**	EPA 7470	438036	EPA 7470	438050
60223195001	**S-LMW-1S**	EPA 903.1	227862		
60223195002	**S-LMW-2S**	EPA 903.1	227862		
60223195003	**S-LMW-5S**	EPA 903.1	227862		
60223195004	**S-LMW-6S**	EPA 903.1	227862		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60223195005	**S-BMW-1S**	EPA 903.1	227862		
60223195007	**S-LMW-DUP-1**	EPA 903.1	227862		
60223195008	**S-LMW-FB-1**	EPA 903.1	227862		
60223211001	**S-LMW-3S**	EPA 903.1	227862		
60223211002	**S-LMW-4S**	EPA 903.1	227862		
60223211003	**S-LMW-7S**	EPA 903.1	227862		
60223211004	**S-LMW-8S**	EPA 903.1	227862		
60223211005	**S-LMW-9S**	EPA 903.1	227862		
60223211006	**S-LMW-DUP-2**	EPA 903.1	227862		
60223211007	**S-LMW-FB-2**	EPA 903.1	227862		
60223195009	**S-LMW-1S MS**	EPA 903.1	227862		
60223195010	**S-LMW-1S MSD**	EPA 903.1	227862		
60223195001	**S-LMW-1S**	EPA 904.0	227780		
60223195002	**S-LMW-2S**	EPA 904.0	227780		
60223195003	**S-LMW-5S**	EPA 904.0	227780		
60223195004	**S-LMW-6S**	EPA 904.0	227780		
60223195005	**S-BMW-1S**	EPA 904.0	227780		
60223195007	**S-LMW-DUP-1**	EPA 904.0	227780		
60223195008	**S-LMW-FB-1**	EPA 904.0	227780		
60223211001	**S-LMW-3S**	EPA 904.0	227780		
60223211002	**S-LMW-4S**	EPA 904.0	227780		
60223211003	**S-LMW-7S**	EPA 904.0	227780		
60223211004	**S-LMW-8S**	EPA 904.0	227780		
60223211005	**S-LMW-9S**	EPA 904.0	227780		
60223211006	**S-LMW-DUP-2**	EPA 904.0	227780		
60223211007	**S-LMW-FB-2**	EPA 904.0	227780		
60223195009	**S-LMW-1S MS**	EPA 904.0	227780		
60223195010	**S-LMW-1S MSD**	EPA 904.0	227780		
60223195001	**S-LMW-1S**	SM 2540C	438032		
60223195002	**S-LMW-2S**	SM 2540C	438067		
60223195003	**S-LMW-5S**	SM 2540C	438069		
60223195004	**S-LMW-6S**	SM 2540C	438069		
60223195005	**S-BMW-1S**	SM 2540C	438032		
60223195007	**S-LMW-DUP-1**	SM 2540C	438069		
60223195008	**S-LMW-FB-1**	SM 2540C	438069		
60223211001	**S-LMW-3S**	SM 2540C	438659		
60223211002	**S-LMW-4S**	SM 2540C	438659		
60223211003	**S-LMW-7S**	SM 2540C	438659		
60223211004	**S-LMW-8S**	SM 2540C	438659		
60223211005	**S-LMW-9S**	SM 2540C	438659		
60223211006	**S-LMW-DUP-2**	SM 2540C	438659		
60223211007	**S-LMW-FB-2**	SM 2540C	438659		
60223195001	**S-LMW-1S**	SM 4500-H+B	437868		
60223195002	**S-LMW-2S**	SM 4500-H+B	437870		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60223195003	**S-LMW-5S**	SM 4500-H+B	437871		
60223195004	**S-LMW-6S**	SM 4500-H+B	437871		
60223195005	**S-BMW-1S**	SM 4500-H+B	437868		
60223195007	**S-LMW-DUP-1**	SM 4500-H+B	437870		
60223195008	**S-LMW-FB-1**	SM 4500-H+B	437871		
60223211001	**S-LMW-3S**	SM 4500-H+B	437871		
60223211002	**S-LMW-4S**	SM 4500-H+B	437871		
60223211003	**S-LMW-7S**	SM 4500-H+B	437871		
60223211004	**S-LMW-8S**	SM 4500-H+B	437871		
60223211005	**S-LMW-9S**	SM 4500-H+B	437871		
60223211006	**S-LMW-DUP-2**	SM 4500-H+B	438481		
60223211007	**S-LMW-FB-2**	SM 4500-H+B	438481		
60223195001	**S-LMW-1S**	EPA 300.0	439322		
60223195001	**S-LMW-1S**	EPA 300.0	439702		
60223195002	**S-LMW-2S**	EPA 300.0	439322		
60223195002	**S-LMW-2S**	EPA 300.0	439702		
60223195003	**S-LMW-5S**	EPA 300.0	439322		
60223195003	**S-LMW-5S**	EPA 300.0	439702		
60223195004	**S-LMW-6S**	EPA 300.0	439322		
60223195004	**S-LMW-6S**	EPA 300.0	439702		
60223195005	**S-BMW-1S**	EPA 300.0	439322		
60223195005	**S-BMW-1S**	EPA 300.0	439702		
60223195007	**S-LMW-DUP-1**	EPA 300.0	439322		
60223195007	**S-LMW-DUP-1**	EPA 300.0	439702		
60223195008	**S-LMW-FB-1**	EPA 300.0	439322		
60223211001	**S-LMW-3S**	EPA 300.0	439323		
60223211001	**S-LMW-3S**	EPA 300.0	439703		
60223211002	**S-LMW-4S**	EPA 300.0	439323		
60223211002	**S-LMW-4S**	EPA 300.0	439703		
60223211003	**S-LMW-7S**	EPA 300.0	439323		
60223211003	**S-LMW-7S**	EPA 300.0	439703		
60223211004	**S-LMW-8S**	EPA 300.0	439323		
60223211004	**S-LMW-8S**	EPA 300.0	439703		
60223211005	**S-LMW-9S**	EPA 300.0	439323		
60223211005	**S-LMW-9S**	EPA 300.0	439703		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60223195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60223211006	**S-LMW-DUP-2**	EPA 300.0	439704		
60223211007	**S-LMW-FB-2**	EPA 300.0	439704		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60223195

60223195

Client Name: Golder Associates

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

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

Optional
Proj Due Date:
Proj Name:

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

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

Thermometer Used: CF +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.2 25.2

Date and initials of person examining contents: JG 7/9

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☒No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☒N/A	
Pace Trip Blank lot # (if purchased): _____		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒N/A	18.

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Jami Church 7/11/16

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:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N	N	N		
1	S-LMW-1S	WT	G			7/5/16	1645		12	3		9							3	3	3	3	6		3 BP3u (3) BP3N (6) BP1N 001
2	S-LMW-2S	WT	G			7/6/16	1254		4	1		3							1	1	1	1	2		1 BP3u BP3N (2) BP1N 002
3	~~S-LMW-3S~~	WT	G																							
4	~~S-LMW-4S~~	WT	G																							
5	S-LMW-5S	WT	G			7/7/16	1411		4	1		3							1	1	1	1	2		003
6	S-LMW-6S	WT	G			7/7/16	1517		4	1		3							1	1	1	1	2		004
7	~~S-LMW-7S~~	WT	G																							
8	~~S-LMW-8S~~	WT	G																							
9	~~S-LMW-9S~~	WT	G																							
10	S-BMW-1S	WT	G			7/5/16	1328		4	1		3							1	1	1	1	2		005
11	S-BMW-2S	WT	G			7/5/16	1535		4	1		3							1	1	1	1	2		006
12	S-LMW-DUP-1	WT	G			7/7/16	—		4	1		3							1	1	1	1	2		007

60223195

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Suozzi/Golder	7/8/16	1137	PACE	7/8/16	1137				
	PACE	7-8-16	1760		7/9	0445	1.2	Y	Y	Y
							2.2	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Suozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 7/7/16

*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
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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 636-724-9191	Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - Fly Ash	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B	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	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	Y/N	Analysis Test: Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Valid Matrix Codes: 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		
1	~~S-LMW-DUP-2~~	WT	G																						
2	S-LMW-FB-1	WT	G			7/7/16	1340		4	1		3							1	1	1	1	2		
3	~~S-LMW-FB-2~~	WT	G																						
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Slozzi / Golder	7/8/16	1137	PAS	7/8/16	1137				
	PAS	7-8-16	1705		7/9	0800	1.2	Y	Y	Y
							2.2	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Slozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 7/7/16

Pace Analytical® www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60223211

60223211

Client Name: Golder

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

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

Optional
Proj Due Date:
Proj Name:

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

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

Thermometer Used: CF +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** (Wet) and Blue (None) (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 3.1, 16.0 → radium only cooler

Date and initials of person examining contents: JSB 7/9/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2. S-LMW-DUP-1 not rec'd
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3. - Extra samples rec'd not on CoC
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4. S-LMW-DUP-2 no time 006
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5. pH S-LMW-FB-2 @ 1020 007
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. 7/9 both collected 7/8
Rush Turn Around Time requested:	☐Yes ☐No ☐N/A	7. both w/ BP3U, BP3N, 2BP1N
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☐N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☐N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Y Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased):	☐Yes ☑No ☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☑N/A	18.

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

Person Contacted: Date/Time:

Comments/ Resolution: S-LMW-DUP-1 listed on separate COC. Per John, analyze S-LMW-DUP-2 and S-LMW-FB-2 for all parameters. Add to SDG 60223195

Project Manager Review: Jami Church Date: 7/11/16

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: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock(Mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St. Charles MO 63301			Address:	
Email To:	mdddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 636-724-9191	Fax: 636-724-9323	Project Name:	Ameren Labadie Energy Center-Fly Ash	Pace Project Manager:	Jamie Chruch
Requested Due Date/TAT:	Standard	Project Number:	153-1406-0001B	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	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	Metals*	Chloride,Fluoride,Sulfate	TDS	pH	Radium 226 &228				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-35	WT				7/8/16	1400		4	1		3							1	1	1	1	2	2 BP1N	BP3N	BP3N		60223211
2	S-LMW-45						1408																					
3	S-LMW-79						0932																					
4	S-LMW-85						1031																					
5	S-LMW-95						1125																					
6	S-DUP-LMW-DUP-1					↓	—		↓	↓		↓							↓	↓	↓	↓	↓						
7																												
8																												
9																												
10																												
11																												
12																												

Valid Matrix Codes

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

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)
	John Suozzi/Golder	7/8/16	17:20		7/8/16	17:20				
		7/8/16	17:30		7/9/16	0445	3.1	Y	N	Y
							16.0	N	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Suozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 7/8/16

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

October 12, 2016

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60227402015	**S-LMW-1S**	Water	09/15/16 15:30	09/16/16 04:30
60227402016	**S-LMW-2S**	Water	09/14/16 15:40	09/16/16 04:30
60227402017	**S-LMW-3S**	Water	09/15/16 14:20	09/16/16 04:30
60227402018	**S-LMW-4S**	Water	09/15/16 14:20	09/16/16 04:30
60227402019	**S-BMW-1S**	Water	09/14/16 12:03	09/16/16 04:30
60227402020	**S-LMW-FB-1**	Water	09/15/16 15:20	09/16/16 04:30
60227901008	**S-LMW-5S**	Water	09/16/16 14:25	09/16/16 20:45
60227901009	**S-LMW-6S**	Water	09/16/16 13:09	09/16/16 20:45
60227901010	**S-LMW-7S**	Water	09/16/16 13:10	09/16/16 20:45
60227901011	**S-LMW-8S**	Water	09/16/16 11:50	09/16/16 20:45
60227901012	**S-LMW-9S**	Water	09/16/16 11:50	09/16/16 20:45
60227901013	**S-LMW-DUP-1**	Water	09/16/16 00:00	09/16/16 20:45
60227901014	**S-LMW-DUP-2**	Water	09/16/16 00:00	09/16/16 20:45
60227901015	**S-LMW-FB-2**	Water	09/16/16 13:03	09/16/16 20:45
60227901016	**S-LMW-8S MS**	Water	09/16/16 11:50	09/16/16 20:45
60227901017	**S-LMW-8S MSD**	Water	09/16/16 11:50	09/16/16 20:45

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60227402015	**S-LMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	MRT, OL	3	PASI-K
60227402016	**S-LMW-2S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227402017	**S-LMW-3S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227402018	**S-LMW-4S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227402019	**S-BMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227402020	**S-LMW-FB-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901008	**S-LMW-5S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901009	**S-LMW-6S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901010	**S-LMW-7S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901011	**S-LMW-8S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP, SMW	6	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901012	**S-LMW-9S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901013	**S-LMW-DUP-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901014	**S-LMW-DUP-2**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60227901015	**S-LMW-FB-2**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	OL	3	PASI-K
60227901016	**S-LMW-8S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60227901017	**S-LMW-8S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-1S **Lab ID: 60227402015** Collected: 09/15/16 15:30 Received: 09/16/16 04:30 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								
Barium	**102**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 14:58	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 14:58	7440-41-7	
Boron	**1890**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 14:58	7440-42-8	
Calcium	**153000**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 14:58	7440-70-2	
Cobalt	**1.7J**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 14:58	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 14:58	7439-92-1	
Lithium	**22.3**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 14:58	7439-93-2	
Molybdenum	**54.5**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 14:58	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.36J**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 18:46	7440-36-0	
Arsenic	**1.7**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 18:46	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 18:46	7440-43-9	
Chromium	**0.62J**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 18:46	7440-47-3	
Selenium	**8.3**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 18:46	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 18:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**865**	mg/L	5.0	5.0	1		09/22/16 16:51		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**54.8**	mg/L	5.0	2.5	5		10/09/16 23:17	16887-00-6	
Fluoride	**0.18J**	mg/L	0.20	0.027	1		10/08/16 14:32	16984-48-8	
Sulfate	**307**	mg/L	20.0	3.1	20		10/09/16 23:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-2S **Lab ID: 60227402016** Collected: 09/14/16 15:40 Received: 09/16/16 04:30 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								
Barium	**139**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 15:00	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 15:00	7440-41-7	
Boron	**11000**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 15:00	7440-42-8	
Calcium	**182000**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 15:00	7440-70-2	
Cobalt	**5.1**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 15:00	7440-48-4	
Lead	**2.5J**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 15:00	7439-92-1	
Lithium	**30.8**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 15:00	7439-93-2	
Molybdenum	**1160**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 15:00	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.14J**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 18:49	7440-36-0	
Arsenic	**1.2**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 18:49	7440-38-2	
Cadmium	**0.19J**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 18:49	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 18:49	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 18:49	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 18:49	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1040**	mg/L	5.0	5.0	1		09/21/16 16:00		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		09/23/16 11:25		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**116**	mg/L	20.0	10.0	20		10/09/16 23:46	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.027	1		10/08/16 15:15	16984-48-8	
Sulfate	**228**	mg/L	20.0	3.1	20		10/09/16 23:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-3S **Lab ID: 60227402017** Collected: 09/15/16 14:20 Received: 09/16/16 04:30 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								
Barium	**121**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 15:04	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 15:04	7440-41-7	
Boron	**246**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 15:04	7440-42-8	
Calcium	**117000**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 15:04	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 15:04	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 15:04	7439-92-1	
Lithium	**18.1**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 15:04	7439-93-2	
Molybdenum	**3.1J**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 15:04	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 18:52	7440-36-0	
Arsenic	**0.41J**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 18:52	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 18:52	7440-43-9	
Chromium	**0.58J**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 18:52	7440-47-3	
Selenium	**2.6**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 18:52	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 18:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:30	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**474**	mg/L	5.0	5.0	1		09/22/16 16:51		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.9**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**20.0**	mg/L	2.0	1.0	2		10/10/16 00:00	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.027	1		10/08/16 15:43	16984-48-8	
Sulfate	**34.7**	mg/L	2.0	0.31	2		10/10/16 00:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-4S **Lab ID: 60227402018** Collected: 09/15/16 14:20 Received: 09/16/16 04:30 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								
Barium	**143**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 15:11	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 15:11	7440-41-7	
Boron	**71.0J**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 15:11	7440-42-8	
Calcium	**141000**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 15:11	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 15:11	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 15:11	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 15:11	7439-93-2	
Molybdenum	**2.3J**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 15:11	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.081J**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 19:05	7440-36-0	
Arsenic	**0.86J**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 19:05	7440-38-2	
Cadmium	**0.049J**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 19:05	7440-43-9	
Chromium	**0.34J**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 19:05	7440-47-3	
Selenium	**0.43J**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 19:05	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 19:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**542**	mg/L	5.0	5.0	1		09/22/16 16:52		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.7**	mg/L	1.0	0.50	1		10/08/16 15:57	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.027	1		10/08/16 15:57	16984-48-8	
Sulfate	**25.0**	mg/L	2.0	0.31	2		10/10/16 00:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-BMW-1S **Lab ID: 60227402019** Collected: 09/14/16 12:03 Received: 09/16/16 04:30 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								
Barium	**199**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 15:14	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 15:14	7440-41-7	
Boron	**165**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 15:14	7440-42-8	
Calcium	**124000**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 15:14	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 15:14	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 15:14	7439-92-1	
Lithium	**21.0**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 15:14	7439-93-2	
Molybdenum	**2.7J**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 15:14	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 19:08	7440-36-0	
Arsenic	**0.38J**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 19:08	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 19:08	7440-43-9	
Chromium	**0.53J**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 19:08	7440-47-3	
Selenium	**5.5**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 19:08	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 19:08	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:38	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**565**	mg/L	5.0	5.0	1		09/21/16 16:01		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		09/23/16 11:25		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**1.9**	mg/L	1.0	0.50	1		10/08/16 16:40	16887-00-6	
Fluoride	**0.16J**	mg/L	0.20	0.027	1		10/08/16 16:40	16984-48-8	
Sulfate	**23.4**	mg/L	2.0	0.31	2		10/10/16 00:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-FB-1 **Lab ID: 60227402020** Collected: 09/15/16 15:20 Received: 09/16/16 04:30 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	09/19/16 16:20	09/20/16 15:16	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:20	09/20/16 15:16	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	09/19/16 16:20	09/20/16 15:16	7440-42-8	
Calcium	**28.2J**	ug/L	100	8.1	1	09/19/16 16:20	09/20/16 15:16	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	09/19/16 16:20	09/20/16 15:16	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:20	09/20/16 15:16	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	09/19/16 16:20	09/20/16 15:16	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	09/19/16 16:20	09/20/16 15:16	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	09/19/16 16:20	09/29/16 19:01	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	09/19/16 16:20	09/29/16 19:01	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	09/19/16 16:20	09/29/16 19:01	7440-43-9	
Chromium	**0.57J**	ug/L	1.0	0.34	1	09/19/16 16:20	09/29/16 19:01	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:20	09/29/16 19:01	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:20	09/29/16 19:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 13:41	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		09/22/16 16:52		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.8**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		10/08/16 16:54	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		10/08/16 16:54	16984-48-8	
Sulfate	**<0.15**	mg/L	1.0	0.15	1		10/08/16 16:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-5S **Lab ID: 60227901008** Collected: 09/16/16 14:25 Received: 09/16/16 20:45 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								
Barium	**66.7**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 15:52	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 15:52	7440-41-7	
Boron	**13800**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 15:52	7440-42-8	
Calcium	**286000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 15:52	7440-70-2	
Cobalt	**1.1J**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 15:52	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 15:52	7439-92-1	
Lithium	**60.4**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 15:52	7439-93-2	
Molybdenum	**753**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 15:52	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:05	7440-36-0	
Arsenic	**0.39J**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:05	7440-38-2	
Cadmium	**1.1**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:05	7440-43-9	
Chromium	**0.56J**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:05	7440-47-3	
Selenium	**0.26J**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:05	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1730**	mg/L	5.0	5.0	1		09/23/16 10:55		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/27/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**33.7**	mg/L	2.0	1.0	2		10/09/16 15:30	16887-00-6	
Fluoride	**0.45**	mg/L	0.20	0.027	1		10/08/16 21:35	16984-48-8	
Sulfate	**968**	mg/L	100	15.4	100		10/09/16 15:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-6S **Lab ID: 60227901009** Collected: 09/16/16 13:09 Received: 09/16/16 20:45 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								
Barium	**42.1**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 15:54	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 15:54	7440-41-7	
Boron	**13400**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 15:54	7440-42-8	
Calcium	**268000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 15:54	7440-70-2	
Cobalt	**7.5**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 15:54	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 15:54	7439-92-1	
Lithium	**23.1**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 15:54	7439-93-2	
Molybdenum	**1.5J**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 15:54	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:08	7440-36-0	
Arsenic	**0.42J**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:08	7440-38-2	
Cadmium	**0.50**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:08	7440-43-9	
Chromium	**0.40J**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:08	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:08	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:08	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:37	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1610**	mg/L	5.0	5.0	1		09/23/16 10:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/27/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.0**	mg/L	1.0	0.50	1		10/08/16 21:50	16887-00-6	
Fluoride	**0.17J**	mg/L	0.20	0.027	1		10/08/16 21:50	16984-48-8	
Sulfate	**842**	mg/L	100	15.4	100		10/09/16 15:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-7S **Lab ID: 60227901010** Collected: 09/16/16 13:10 Received: 09/16/16 20:45 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								
Barium	**123**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 15:57	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 15:57	7440-41-7	
Boron	**1690**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 15:57	7440-42-8	
Calcium	**214000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 15:57	7440-70-2	
Cobalt	**2.6J**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 15:57	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 15:57	7439-92-1	
Lithium	**20.7**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 15:57	7439-93-2	
Molybdenum	**3.0J**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 15:57	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:11	7440-36-0	
Arsenic	**0.17J**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:11	7440-38-2	
Cadmium	**0.18J**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:11	7440-43-9	
Chromium	**0.36J**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:11	7440-47-3	
Selenium	**1.5**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:11	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:11	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:39	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**979**	mg/L	5.0	5.0	1		09/23/16 10:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/27/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**15.4**	mg/L	1.0	0.50	1		10/08/16 22:06	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.027	1		10/08/16 22:06	16984-48-8	
Sulfate	**293**	mg/L	50.0	7.7	50		10/09/16 16:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-8S **Lab ID: 60227901011** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 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								
Barium	**99.4**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 15:59	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 15:59	7440-41-7	
Boron	**5660**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 15:59	7440-42-8	
Calcium	**152000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 15:59	7440-70-2	M1
Cobalt	**4.1J**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 15:59	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 15:59	7439-92-1	
Lithium	**20.6**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 15:59	7439-93-2	
Molybdenum	**124**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 15:59	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.19J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/30/16 11:56	7440-36-0	
Arsenic	**1.1**	ug/L	1.0	0.10	1	09/19/16 16:10	09/30/16 11:56	7440-38-2	
Cadmium	**0.082J**	ug/L	0.50	0.029	1	09/19/16 16:10	09/30/16 11:56	7440-43-9	
Chromium	**0.46J**	ug/L	1.0	0.34	1	09/19/16 16:10	09/30/16 11:56	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:10	10/03/16 12:23	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/30/16 11:56	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:42	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**822**	mg/L	5.0	5.0	1		09/23/16 10:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.4**	mg/L	5.0	2.5	5		10/09/16 16:27	16887-00-6	
Fluoride	**1.0**	mg/L	0.20	0.027	1		10/08/16 22:21	16984-48-8	
Sulfate	**386**	mg/L	50.0	7.7	50		10/09/16 17:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-9S **Lab ID: 60227901012** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 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								
Barium	**79.8**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 16:10	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 16:10	7440-41-7	
Boron	**1430**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 16:10	7440-42-8	
Calcium	**226000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 16:10	7440-70-2	
Cobalt	**11.5**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 16:10	7440-48-4	
Lead	**2.5J**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 16:10	7439-92-1	
Lithium	**48.7**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 16:10	7439-93-2	
Molybdenum	**7.8J**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 16:10	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.073J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:18	7440-36-0	
Arsenic	**1.6**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:18	7440-38-2	
Cadmium	**0.10J**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:18	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:18	7440-47-3	
Selenium	**0.19J**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:18	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:48	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1170**	mg/L	5.0	5.0	1		09/23/16 10:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**76.1**	mg/L	5.0	2.5	5		10/09/16 17:52	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.027	1		10/08/16 22:52	16984-48-8	
Sulfate	**303**	mg/L	50.0	7.7	50		10/09/16 18:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-DUP-1 **Lab ID: 60227901013** Collected: 09/16/16 00:00 Received: 09/16/16 20:45 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								
Barium	**76.3**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 16:12	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 16:12	7440-41-7	
Boron	**1370**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 16:12	7440-42-8	
Calcium	**218000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 16:12	7440-70-2	
Cobalt	**11.0**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 16:12	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 16:12	7439-92-1	
Lithium	**46.2**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 16:12	7439-93-2	
Molybdenum	**6.6J**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 16:12	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.080J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:24	7440-36-0	
Arsenic	**1.6**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:24	7440-38-2	
Cadmium	**0.060J**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:24	7440-43-9	
Chromium	**0.75J**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:24	7440-47-3	
Selenium	**0.23J**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:24	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:24	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1180**	mg/L	5.0	5.0	1		09/23/16 10:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**75.7**	mg/L	5.0	2.5	5		10/09/16 18:20	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.027	1		10/08/16 23:53	16984-48-8	
Sulfate	**304**	mg/L	50.0	7.7	50		10/09/16 18:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-DUP-2 **Lab ID: 60227901014** Collected: 09/16/16 00:00 Received: 09/16/16 20:45 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								
Barium	**42.3**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 16:14	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 16:14	7440-41-7	
Boron	**13600**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 16:14	7440-42-8	
Calcium	**271000**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 16:14	7440-70-2	
Cobalt	**7.5**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 16:14	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 16:14	7439-92-1	
Lithium	**23.0**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 16:14	7439-93-2	
Molybdenum	**0.76J**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 16:14	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:34	7440-36-0	
Arsenic	**0.44J**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:34	7440-38-2	
Cadmium	**0.67**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:34	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:34	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:34	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1630**	mg/L	5.0	5.0	1		09/23/16 10:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/25/16 20:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.0**	mg/L	1.0	0.50	1		10/09/16 00:09	16887-00-6	
Fluoride	**0.16J**	mg/L	0.20	0.027	1		10/09/16 00:09	16984-48-8	
Sulfate	**813**	mg/L	100	15.4	100		10/09/16 18:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-FB-2 **Lab ID: 60227901015** Collected: 09/16/16 13:03 Received: 09/16/16 20:45 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								
Barium	**<0.58**	ug/L	10.0	0.58	1	09/19/16 16:10	09/20/16 16:17	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	09/19/16 16:10	09/20/16 16:17	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	09/19/16 16:10	09/20/16 16:17	7440-42-8	
Calcium	**52.5J**	ug/L	100	8.1	1	09/19/16 16:10	09/20/16 16:17	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	09/19/16 16:10	09/20/16 16:17	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	09/19/16 16:10	09/20/16 16:17	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	09/19/16 16:10	09/20/16 16:17	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	09/19/16 16:10	09/20/16 16:17	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	09/19/16 16:10	09/29/16 20:21	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	09/19/16 16:10	09/29/16 20:21	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	09/19/16 16:10	09/29/16 20:21	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	09/19/16 16:10	09/29/16 20:21	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	09/19/16 16:10	09/29/16 20:21	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	09/19/16 16:10	09/29/16 20:21	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	09/20/16 08:30	09/20/16 14:55	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		09/23/16 10:58		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.7**	Std. Units	0.10	0.10	1		09/27/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		10/09/16 00:24	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		10/09/16 00:24	16984-48-8	
Sulfate	**0.83J**	mg/L	1.0	0.15	1		10/09/16 00:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447159 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1828989 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	09/20/16 12:45	

LABORATORY CONTROL SAMPLE: 1828990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828991 1828992

Parameter	Units	60227580011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	4.8	4.3	96	87	75-125	10	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447160 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

METHOD BLANK: 1828993 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	09/20/16 13:47	

LABORATORY CONTROL SAMPLE: 1828994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828995 1828996

Parameter	Units	60227900009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	4.0	3.9	79	78	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828997 1828998

Parameter	Units	60227901011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.2	4.6	104	92	75-125	12	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447058 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1828802 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	0.95J	5.0	0.58	09/20/16 14:17	
Beryllium	ug/L	<0.26	1.0	0.26	09/20/16 14:17	
Boron	ug/L	<50.0	100	50.0	09/20/16 14:17	
Calcium	ug/L	<8.1	100	8.1	09/20/16 14:17	
Cobalt	ug/L	<0.72	5.0	0.72	09/20/16 14:17	
Lead	ug/L	<2.5	5.0	2.5	09/20/16 14:17	
Lithium	ug/L	<4.9	10.0	4.9	09/20/16 14:17	
Molybdenum	ug/L	<0.52	20.0	0.52	09/20/16 14:17	

LABORATORY CONTROL SAMPLE: 1828803

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1010	101	85-115	
Beryllium	ug/L	1000	995	100	85-115	
Boron	ug/L	1000	953	95	85-115	
Calcium	ug/L	10000	9710	97	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Lead	ug/L	1000	1020	102	85-115	
Lithium	ug/L	1000	989	99	85-115	
Molybdenum	ug/L	1000	1060	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828804 1828805

Parameter	Units	60227580011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	206	1000	1000	1220	1220	102	102	70-130	0	20	
Beryllium	ug/L	<0.26	1000	1000	1000	1000	100	100	70-130	0	20	
Boron	ug/L	85.8J	1000	1000	1070	1080	99	100	70-130	1	20	
Calcium	ug/L	123000	10000	10000	134000	133000	111	105	70-130	0	20	
Cobalt	ug/L	1.6J	1000	1000	993	994	99	99	70-130	0	20	
Lead	ug/L	<2.5	1000	1000	992	993	99	99	70-130	0	20	
Lithium	ug/L	31.0	1000	1000	1060	1050	102	102	70-130	0	20	
Molybdenum	ug/L	3.6J	1000	1000	1070	1070	107	107	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

MATRIX SPIKE SAMPLE: 1828806

Parameter	Units	60227402016 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	139	1000	1160	102	70-130	
Beryllium	ug/L	<0.26	1000	998	100	70-130	
Boron	ug/L	11000	1000	12000	101	70-130	
Calcium	ug/L	182000	10000	193000	110	70-130	
Cobalt	ug/L	5.1	1000	999	99	70-130	
Lead	ug/L	2.5J	1000	992	99	70-130	
Lithium	ug/L	30.8	1000	1070	104	70-130	
Molybdenum	ug/L	1160	1000	2210	106	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447059 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

METHOD BLANK: 1828808 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	09/20/16 15:20	
Beryllium	ug/L	<0.26	1.0	0.26	09/20/16 15:20	
Boron	ug/L	<50.0	100	50.0	09/20/16 15:20	
Calcium	ug/L	<8.1	100	8.1	09/20/16 15:20	
Cobalt	ug/L	<0.72	5.0	0.72	09/20/16 15:20	
Lead	ug/L	<2.5	5.0	2.5	09/20/16 15:20	
Lithium	ug/L	<4.9	10.0	4.9	09/20/16 15:20	
Molybdenum	ug/L	1.0J	20.0	0.52	09/20/16 15:20	

LABORATORY CONTROL SAMPLE: 1828809

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1020	102	85-115	
Beryllium	ug/L	1000	995	100	85-115	
Boron	ug/L	1000	983	98	85-115	
Calcium	ug/L	10000	9750	97	85-115	
Cobalt	ug/L	1000	1030	103	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	994	99	85-115	
Molybdenum	ug/L	1000	1070	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828810 1828811

Parameter	Units	60227900009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	117	1000	1000	1120	1130	100	101	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	986	1000	99	100	70-130	2	20	
Boron	ug/L	802	1000	1000	1740	1770	94	97	70-130	2	20	
Calcium	ug/L	74100	10000	10000	81000	82200	69	81	70-130	2	20	M1
Cobalt	ug/L	<0.72	1000	1000	991	1000	99	100	70-130	1	20	
Lead	ug/L	<2.5	1000	1000	993	1010	99	101	70-130	2	20	
Lithium	ug/L	12.0	1000	1000	1010	1030	100	101	70-130	1	20	
Molybdenum	ug/L	112	1000	1000	1160	1180	105	107	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828812 1828813

Parameter	Units	60227901011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	99.4	1000	1000	1110	1120	101	102	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	994	997	99	100	70-130	0	20	
Boron	ug/L	5660	1000	1000	6380	6600	73	94	70-130	3	20	
Calcium	ug/L	152000	10000	10000	157000	163000	52	108	70-130	4	20	M1
Cobalt	ug/L	4.1J	1000	1000	1000	1010	100	100	70-130	0	20	
Lead	ug/L	<2.5	1000	1000	994	998	99	100	70-130	0	20	
Lithium	ug/L	20.6	1000	1000	1040	1050	102	103	70-130	1	20	
Molybdenum	ug/L	124	1000	1000	1200	1210	108	109	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447057 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1828797 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	09/29/16 17:46	
Arsenic	ug/L	<0.10	1.0	0.10	09/29/16 17:46	
Cadmium	ug/L	<0.029	0.50	0.029	09/29/16 17:46	
Chromium	ug/L	<0.34	1.0	0.34	09/29/16 17:46	
Selenium	ug/L	<0.18	1.0	0.18	09/29/16 17:46	
Thallium	ug/L	<0.50	1.0	0.50	09/29/16 17:46	

LABORATORY CONTROL SAMPLE: 1828798

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.1	100	85-115	
Arsenic	ug/L	40	39.9	100	85-115	
Cadmium	ug/L	40	40.2	101	85-115	
Chromium	ug/L	40	41.4	103	85-115	
Selenium	ug/L	40	39.6	99	85-115	
Thallium	ug/L	40	38.0	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828799 1828800

Parameter	Units	60227580011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.063J	40	40	39.6	39.4	99	98	70-130	1	20	
Arsenic	ug/L	2.8	40	40	44.1	44.1	103	103	70-130	0	20	
Cadmium	ug/L	<0.029	40	40	38.8	38.5	97	96	70-130	1	20	
Chromium	ug/L	<0.34	40	40	40.6	40.4	101	100	70-130	1	20	
Selenium	ug/L	<0.18	40	40	39.0	38.8	97	97	70-130	0	20	
Thallium	ug/L	<0.50	40	40	40.4	40.2	101	101	70-130	0	20	

MATRIX SPIKE SAMPLE: 1828801

Parameter	Units	60227580019 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.058	40	40.6	102	70-130	
Arsenic	ug/L	5.6	40	47.0	103	70-130	
Cadmium	ug/L	<0.029	40	39.3	98	70-130	
Chromium	ug/L	<0.34	40	41.1	102	70-130	
Selenium	ug/L	<0.18	40	37.8	94	70-130	
Thallium	ug/L	<0.50	40	40.4	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447060 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

METHOD BLANK: 1828814 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	09/29/16 19:17	
Arsenic	ug/L	<0.10	1.0	0.10	09/29/16 19:17	
Cadmium	ug/L	<0.029	0.50	0.029	09/29/16 19:17	
Chromium	ug/L	<0.34	1.0	0.34	09/29/16 19:17	
Selenium	ug/L	<0.18	1.0	0.18	09/29/16 19:17	
Thallium	ug/L	<0.50	1.0	0.50	09/29/16 19:17	

LABORATORY CONTROL SAMPLE: 1828815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.6	102	85-115	
Arsenic	ug/L	40	40.9	102	85-115	
Cadmium	ug/L	40	40.5	101	85-115	
Chromium	ug/L	40	41.2	103	85-115	
Selenium	ug/L	40	40.2	101	85-115	
Thallium	ug/L	40	38.4	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828816 1828817

Parameter	Units	60227900009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.058	40	40	40.2	41.3	101	103	70-130	3	20	
Arsenic	ug/L	0.34J	40	40	40.4	41.5	100	103	70-130	3	20	
Cadmium	ug/L	<0.029	40	40	39.7	39.5	99	99	70-130	1	20	
Chromium	ug/L	<0.34	40	40	40.7	41.2	101	102	70-130	1	20	
Selenium	ug/L	<0.18	40	40	37.8	39.3	94	98	70-130	4	20	
Thallium	ug/L	<0.50	40	40	39.8	40.1	100	100	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828818 1828819

Parameter	Units	60227901011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.19J	40	40	40.8	40.2	101	100	70-130	1	20	
Arsenic	ug/L	1.1	40	40	43.9	43.0	107	105	70-130	2	20	
Cadmium	ug/L	0.082J	40	40	38.6	38.8	96	97	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1828818 1828819

Parameter	Units	60227901011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	ug/L	0.46J	40	40	42.9	41.8	106	103	70-130	3	20	
Selenium	ug/L	<0.18	40	40	38.6	39.6	96	99	70-130	2	20	
Thallium	ug/L	<0.50	40	40	41.4	41.6	103	104	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447478 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60227402016, 60227402019

METHOD BLANK: 1830494 Matrix: Water
Associated Lab Samples: 60227402016, 60227402019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	09/21/16 15:57	

LABORATORY CONTROL SAMPLE: 1830495

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

SAMPLE DUPLICATE: 1830496

Parameter	Units	60227580017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	580	575	1	10	

SAMPLE DUPLICATE: 1830497

Parameter	Units	60227403022 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	506	494	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447622 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60227402015, 60227402017, 60227402018, 60227402020

METHOD BLANK: 1831069 Matrix: Water
Associated Lab Samples: 60227402015, 60227402017, 60227402018, 60227402020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	09/22/16 16:45	

LABORATORY CONTROL SAMPLE: 1831070

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

SAMPLE DUPLICATE: 1831071

Parameter	Units	60227580011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	492	477	3	10	

SAMPLE DUPLICATE: 1831072

Parameter	Units	60227580020 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	<5.0	<5.0		10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447630 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

METHOD BLANK: 1831112 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	09/23/16 10:54	

LABORATORY CONTROL SAMPLE: 1831113

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 1831114

Parameter	Units	60227900009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	436	443	2	10	

SAMPLE DUPLICATE: 1831115

Parameter	Units	60227901011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	822	842	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447611
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60227402016, 60227402019

SAMPLE DUPLICATE: 1831033

Parameter	Units	60227720002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447880 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60227402015, 60227402017, 60227402018, 60227402020, 60227901011, 60227901012, 60227901013, 60227901014

SAMPLE DUPLICATE: 1832509

Parameter	Units	60227900009 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.4	0	5	H6

SAMPLE DUPLICATE: 1832510

Parameter	Units	60227901011 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 447902 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901015

SAMPLE DUPLICATE: 1832578

Parameter	Units	60227886001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.2	6.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 449693 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901012, 60227901013, 60227901014

METHOD BLANK: 1840299 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901012, 60227901013, 60227901014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	10/08/16 09:13	
Fluoride	mg/L	<0.027	0.20	0.027	10/08/16 09:13	

LABORATORY CONTROL SAMPLE: 1840300

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840301 1840302

Parameter	Units	60228562001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.5	5	5	11.4	11.3	97	96	80-120	0	15	
Fluoride	mg/L	0.22	2.5	2.5	2.8	2.8	102	101	80-120	0	15	

MATRIX SPIKE SAMPLE: 1840303

Parameter	Units	60228563001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10.1	5	14.7	92	80-120	
Fluoride	mg/L	0.41	2.5	2.8	94	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 449695 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1840314 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	10/08/16 14:04	
Fluoride	mg/L	<0.027	0.20	0.027	10/08/16 14:04	
Sulfate	mg/L	<0.15	1.0	0.15	10/08/16 14:04	

LABORATORY CONTROL SAMPLE: 1840315

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	90	90-110	
Sulfate	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840316 1840317

Parameter	Units	60227402015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.18J	2.5	2.5	2.6	2.7	98	101	80-120	3	15	

MATRIX SPIKE SAMPLE: 1840318

Parameter	Units	60227402016 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.35	2.5	2.8	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 449698
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227901011, 60227901015

METHOD BLANK: 1840351 Matrix: Water
Associated Lab Samples: 60227901011, 60227901015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	10/08/16 16:57	
Fluoride	mg/L	<0.027	0.20	0.027	10/08/16 16:57	
Sulfate	mg/L	<0.15	1.0	0.15	10/08/16 16:57	

LABORATORY CONTROL SAMPLE: 1840352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840353 1840354

Parameter	Units	60227900009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.63	2.5	2.5	3.0	3.1	95	100	80-120	3	15	

MATRIX SPIKE SAMPLE: 1840355

Parameter	Units	60227901011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	1.0	2.5	3.5	98	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 449710 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019

METHOD BLANK: 1840645 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	10/09/16 19:03	
Sulfate	mg/L	<0.15	1.0	0.15	10/09/16 19:03	

LABORATORY CONTROL SAMPLE: 1840646

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Sulfate	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840647 1840648

Parameter	Units	60227580010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	31.3	10	10	40.0	39.9	87	86	80-120	0	15	

MATRIX SPIKE SAMPLE: 1840649

Parameter	Units	60227580011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	57.5	25	84.2	107	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 449712 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014

METHOD BLANK: 1840654 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	10/09/16 09:54	
Sulfate	mg/L	<0.15	1.0	0.15	10/09/16 09:54	

LABORATORY CONTROL SAMPLE: 1840655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Sulfate	mg/L	5	4.7	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840656 1840657

Parameter	Units	60227900009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	25.5	10	10	34.6	34.7	92	92	80-120	0	15	
Sulfate	mg/L	38.6	25	25	63.1	64.1	98	102	80-120	2	15	

MATRIX SPIKE SAMPLE: 1840658

Parameter	Units	60227901011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	39.4	25	65.7	105	80-120	
Sulfate	mg/L	386	250	647	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-1S **Lab ID: 60227402015** Collected: 09/15/16 15:30 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0578 ± 0.264 (0.425) C:NA T:90%**	pCi/L	10/05/16 21:48	13982-63-3	
Radium-228	EPA 904.0	**0.375 ± 0.346 (0.705) C:77% T:84%**	pCi/L	10/05/16 12:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-2S **Lab ID: 60227402016** Collected: 09/14/16 15:40 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.281 (0.453) C:NA T:89%**	pCi/L	10/05/16 21:49	13982-63-3	
Radium-228	EPA 904.0	**0.909 ± 0.438 (0.746) C:73% T:80%**	pCi/L	10/05/16 12:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-3S **Lab ID: 60227402017** Collected: 09/15/16 14:20 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0601 ± 0.354 (0.722) C:NA T:93%**	pCi/L	10/05/16 21:48	13982-63-3	
Radium-228	EPA 904.0	**0.503 ± 0.374 (0.737) C:72% T:92%**	pCi/L	10/05/16 12:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-4S **Lab ID: 60227402018** Collected: 09/15/16 14:20 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.124 ± 0.385 (0.874) C:NA T:86%**	pCi/L	10/05/16 21:48	13982-63-3	
Radium-228	EPA 904.0	**0.689 ± 0.403 (0.738) C:71% T:85%**	pCi/L	10/05/16 12:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-BMW-1S **Lab ID: 60227402019** Collected: 09/14/16 12:03 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.207 ± 0.287 (0.480) C:NA T:95%**	pCi/L	10/05/16 21:49	13982-63-3	
Radium-228	EPA 904.0	**0.223 ± 0.300 (0.640) C:78% T:85%**	pCi/L	10/05/16 12:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-FB-1 **Lab ID: 60227402020** Collected: 09/15/16 15:20 Received: 09/16/16 04:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.183 ± 0.360 (0.658) C:NA T:83%**	pCi/L	10/05/16 21:49	13982-63-3	
Radium-228	EPA 904.0	**0.791 ± 0.397 (0.664) C:78% T:80%**	pCi/L	10/05/16 12:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-5S **Lab ID: 60227901008** Collected: 09/16/16 14:25 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.110 ± 0.405 (0.778) C:NA T:90%**	pCi/L	10/05/16 22:22	13982-63-3	
Radium-228	EPA 904.0	**0.506 ± 0.425 (0.849) C:65% T:81%**	pCi/L	10/05/16 12:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-6S **Lab ID: 60227901009** Collected: 09/16/16 13:09 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.058 ± 0.264 (0.537) C:NA T:94%**	pCi/L	10/05/16 22:22	13982-63-3	
Radium-228	EPA 904.0	**0.959 ± 0.572 (1.06) C:65% T:72%**	pCi/L	10/05/16 12:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-7S **Lab ID: 60227901010** Collected: 09/16/16 13:10 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.161 ± 0.315 (0.576) C:NA T:98%**	pCi/L	10/05/16 22:22	13982-63-3	
Radium-228	EPA 904.0	**0.919 ± 0.496 (0.871) C:64% T:82%**	pCi/L	10/05/16 12:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-8S **Lab ID: 60227901011** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.288 (0.645) C:NA T:91%**	pCi/L	10/05/16 22:23	13982-63-3	
Radium-228	EPA 904.0	**0.528 ± 0.404 (0.788) C:72% T:78%**	pCi/L	10/05/16 12:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-9S **Lab ID: 60227901012** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.290 ± 0.303 (0.427) C:NA T:89%**	pCi/L	10/05/16 22:23	13982-63-3	
Radium-228	EPA 904.0	**0.612 ± 0.386 (0.714) C:69% T:83%**	pCi/L	10/05/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-DUP-1 **Lab ID: 60227901013** Collected: 09/16/16 00:00 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.057 ± 0.261 (0.615) C:NA T:93%**	pCi/L	10/05/16 22:59	13982-63-3	
Radium-228	EPA 904.0	**0.841 ± 0.463 (0.831) C:66% T:82%**	pCi/L	10/05/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-DUP-2 **Lab ID: 60227901014** Collected: 09/16/16 00:00 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.171 ± 0.260 (0.418) C:NA T:96%**	pCi/L	10/05/16 22:59	13982-63-3	
Radium-228	EPA 904.0	**0.573 ± 0.427 (0.824) C:63% T:76%**	pCi/L	10/05/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-FB-2 **Lab ID: 60227901015** Collected: 09/16/16 13:03 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.264 (0.538) C:NA T:90%**	pCi/L	10/05/16 22:57	13982-63-3	
Radium-228	EPA 904.0	**0.0853 ± 0.307 (0.701) C:71% T:76%**	pCi/L	10/05/16 15:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-8S MS **Lab ID: 60227901016** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**84.8%REC ± NA (NA)**	pCi/L	10/05/16 23:36	13982-63-3	
Radium-228	EPA 904.0	**120 %REC +/- NA (NA) C:NA T:NA**	pCi/L	10/05/16 16:30	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Sample: S-LMW-8S MSD **Lab ID: 60227901017** Collected: 09/16/16 11:50 Received: 09/16/16 20:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**91.7%REC 7.83RPD ± NA (NA)**	pCi/L	10/05/16 22:58	13982-63-3	
Radium-228	EPA 904.0	**129 %REC 7.08 RPD +/- NA (NA) C:NA T:NA**	pCi/L	10/05/16 16:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 234076 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015, 60227901016, 60227901017

METHOD BLANK: 1147973 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015, 60227901016, 60227901017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.359 ± 0.332 (0.672) C:68% T:89%	pCi/L	10/05/16 12:05	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 234072 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015, 60227901016, 60227901017

METHOD BLANK: 1147966 Matrix: Water
Associated Lab Samples: 60227901008, 60227901009, 60227901010, 60227901011, 60227901012, 60227901013, 60227901014, 60227901015, 60227901016, 60227901017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.054 ± 0.247 (0.581) C:NA T:97%	pCi/L	10/05/16 22:22	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 234075 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1147972 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0637 ± 0.339 (0.773) C:69% T:93%	pCi/L	10/05/16 11:57	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

QC Batch: 234070 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

METHOD BLANK: 1147941 Matrix: Water
Associated Lab Samples: 60227402015, 60227402016, 60227402017, 60227402018, 60227402019, 60227402020

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.176 ± 0.345 (0.630) C:NA T:91%	pCi/L	10/05/16 19:55	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227402015	**S-LMW-1S**	EPA 200.7	447058	EPA 200.7	447184
60227402016	**S-LMW-2S**	EPA 200.7	447058	EPA 200.7	447184
60227402017	**S-LMW-3S**	EPA 200.7	447058	EPA 200.7	447184
60227402018	**S-LMW-4S**	EPA 200.7	447058	EPA 200.7	447184
60227402019	**S-BMW-1S**	EPA 200.7	447058	EPA 200.7	447184
60227402020	**S-LMW-FB-1**	EPA 200.7	447058	EPA 200.7	447184
60227901008	**S-LMW-5S**	EPA 200.7	447059	EPA 200.7	447197
60227901009	**S-LMW-6S**	EPA 200.7	447059	EPA 200.7	447197
60227901010	**S-LMW-7S**	EPA 200.7	447059	EPA 200.7	447197
60227901011	**S-LMW-8S**	EPA 200.7	447059	EPA 200.7	447197
60227901012	**S-LMW-9S**	EPA 200.7	447059	EPA 200.7	447197
60227901013	**S-LMW-DUP-1**	EPA 200.7	447059	EPA 200.7	447197
60227901014	**S-LMW-DUP-2**	EPA 200.7	447059	EPA 200.7	447197
60227901015	**S-LMW-FB-2**	EPA 200.7	447059	EPA 200.7	447197
60227402015	**S-LMW-1S**	EPA 200.8	447057	EPA 200.8	447185
60227402016	**S-LMW-2S**	EPA 200.8	447057	EPA 200.8	447185
60227402017	**S-LMW-3S**	EPA 200.8	447057	EPA 200.8	447185
60227402018	**S-LMW-4S**	EPA 200.8	447057	EPA 200.8	447185
60227402019	**S-BMW-1S**	EPA 200.8	447057	EPA 200.8	447185
60227402020	**S-LMW-FB-1**	EPA 200.8	447057	EPA 200.8	447185
60227901008	**S-LMW-5S**	EPA 200.8	447060	EPA 200.8	447199
60227901009	**S-LMW-6S**	EPA 200.8	447060	EPA 200.8	447199
60227901010	**S-LMW-7S**	EPA 200.8	447060	EPA 200.8	447199
60227901011	**S-LMW-8S**	EPA 200.8	447060	EPA 200.8	447199
60227901012	**S-LMW-9S**	EPA 200.8	447060	EPA 200.8	447199
60227901013	**S-LMW-DUP-1**	EPA 200.8	447060	EPA 200.8	447199
60227901014	**S-LMW-DUP-2**	EPA 200.8	447060	EPA 200.8	447199
60227901015	**S-LMW-FB-2**	EPA 200.8	447060	EPA 200.8	447199
60227402015	**S-LMW-1S**	EPA 7470	447159	EPA 7470	447212
60227402016	**S-LMW-2S**	EPA 7470	447159	EPA 7470	447212
60227402017	**S-LMW-3S**	EPA 7470	447159	EPA 7470	447212
60227402018	**S-LMW-4S**	EPA 7470	447159	EPA 7470	447212
60227402019	**S-BMW-1S**	EPA 7470	447159	EPA 7470	447212
60227402020	**S-LMW-FB-1**	EPA 7470	447159	EPA 7470	447212
60227901008	**S-LMW-5S**	EPA 7470	447160	EPA 7470	447213
60227901009	**S-LMW-6S**	EPA 7470	447160	EPA 7470	447213
60227901010	**S-LMW-7S**	EPA 7470	447160	EPA 7470	447213
60227901011	**S-LMW-8S**	EPA 7470	447160	EPA 7470	447213
60227901012	**S-LMW-9S**	EPA 7470	447160	EPA 7470	447213
60227901013	**S-LMW-DUP-1**	EPA 7470	447160	EPA 7470	447213
60227901014	**S-LMW-DUP-2**	EPA 7470	447160	EPA 7470	447213
60227901015	**S-LMW-FB-2**	EPA 7470	447160	EPA 7470	447213
60227402015	**S-LMW-1S**	EPA 903.1	234070		
60227402016	**S-LMW-2S**	EPA 903.1	234070		
60227402017	**S-LMW-3S**	EPA 903.1	234070		
60227402018	**S-LMW-4S**	EPA 903.1	234070		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227402019	S-BMW-1S	EPA 903.1	234070		
60227402020	S-LMW-FB-1	EPA 903.1	234070		
60227901008	S-LMW-5S	EPA 903.1	234072		
60227901009	S-LMW-6S	EPA 903.1	234072		
60227901010	S-LMW-7S	EPA 903.1	234072		
60227901011	S-LMW-8S	EPA 903.1	234072		
60227901012	S-LMW-9S	EPA 903.1	234072		
60227901013	S-LMW-DUP-1	EPA 903.1	234072		
60227901014	S-LMW-DUP-2	EPA 903.1	234072		
60227901015	S-LMW-FB-2	EPA 903.1	234072		
60227901016	S-LMW-8S MS	EPA 903.1	234072		
60227901017	S-LMW-8S MSD	EPA 903.1	234072		
60227402015	S-LMW-1S	EPA 904.0	234075		
60227402016	S-LMW-2S	EPA 904.0	234075		
60227402017	S-LMW-3S	EPA 904.0	234075		
60227402018	S-LMW-4S	EPA 904.0	234075		
60227402019	S-BMW-1S	EPA 904.0	234075		
60227402020	S-LMW-FB-1	EPA 904.0	234075		
60227901008	S-LMW-5S	EPA 904.0	234076		
60227901009	S-LMW-6S	EPA 904.0	234076		
60227901010	S-LMW-7S	EPA 904.0	234076		
60227901011	S-LMW-8S	EPA 904.0	234076		
60227901012	S-LMW-9S	EPA 904.0	234076		
60227901013	S-LMW-DUP-1	EPA 904.0	234076		
60227901014	S-LMW-DUP-2	EPA 904.0	234076		
60227901015	S-LMW-FB-2	EPA 904.0	234076		
60227901016	S-LMW-8S MS	EPA 904.0	234076		
60227901017	S-LMW-8S MSD	EPA 904.0	234076		
60227402015	S-LMW-1S	SM 2540C	447622		
60227402016	S-LMW-2S	SM 2540C	447478		
60227402017	S-LMW-3S	SM 2540C	447622		
60227402018	S-LMW-4S	SM 2540C	447622		
60227402019	S-BMW-1S	SM 2540C	447478		
60227402020	S-LMW-FB-1	SM 2540C	447622		
60227901008	S-LMW-5S	SM 2540C	447630		
60227901009	S-LMW-6S	SM 2540C	447630		
60227901010	S-LMW-7S	SM 2540C	447630		
60227901011	S-LMW-8S	SM 2540C	447630		
60227901012	S-LMW-9S	SM 2540C	447630		
60227901013	S-LMW-DUP-1	SM 2540C	447630		
60227901014	S-LMW-DUP-2	SM 2540C	447630		
60227901015	S-LMW-FB-2	SM 2540C	447630		
60227402015	S-LMW-1S	SM 4500-H+B	447880		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227402016	S-LMW-2S	SM 4500-H+B	447611		
60227402017	S-LMW-3S	SM 4500-H+B	447880		
60227402018	S-LMW-4S	SM 4500-H+B	447880		
60227402019	S-BMW-1S	SM 4500-H+B	447611		
60227402020	S-LMW-FB-1	SM 4500-H+B	447880		
60227901008	S-LMW-5S	SM 4500-H+B	447902		
60227901009	S-LMW-6S	SM 4500-H+B	447902		
60227901010	S-LMW-7S	SM 4500-H+B	447902		
60227901011	S-LMW-8S	SM 4500-H+B	447880		
60227901012	S-LMW-9S	SM 4500-H+B	447880		
60227901013	S-LMW-DUP-1	SM 4500-H+B	447880		
60227901014	S-LMW-DUP-2	SM 4500-H+B	447880		
60227901015	S-LMW-FB-2	SM 4500-H+B	447902		
60227402015	S-LMW-1S	EPA 300.0	449695		
60227402015	S-LMW-1S	EPA 300.0	449710		
60227402016	S-LMW-2S	EPA 300.0	449695		
60227402016	S-LMW-2S	EPA 300.0	449710		
60227402017	S-LMW-3S	EPA 300.0	449695		
60227402017	S-LMW-3S	EPA 300.0	449710		
60227402018	S-LMW-4S	EPA 300.0	449695		
60227402018	S-LMW-4S	EPA 300.0	449710		
60227402019	S-BMW-1S	EPA 300.0	449695		
60227402019	S-BMW-1S	EPA 300.0	449710		
60227402020	S-LMW-FB-1	EPA 300.0	449695		
60227901008	S-LMW-5S	EPA 300.0	449693		
60227901008	S-LMW-5S	EPA 300.0	449712		
60227901009	S-LMW-6S	EPA 300.0	449693		
60227901009	S-LMW-6S	EPA 300.0	449712		
60227901010	S-LMW-7S	EPA 300.0	449693		
60227901010	S-LMW-7S	EPA 300.0	449712		
60227901011	S-LMW-8S	EPA 300.0	449698		
60227901011	S-LMW-8S	EPA 300.0	449712		
60227901012	S-LMW-9S	EPA 300.0	449693		
60227901012	S-LMW-9S	EPA 300.0	449712		
60227901013	S-LMW-DUP-1	EPA 300.0	449693		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60227901

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227901013	**S-LMW-DUP-1**	EPA 300.0	449712		
60227901014	**S-LMW-DUP-2**	EPA 300.0	449693		
60227901014	**S-LMW-DUP-2**	EPA 300.0	449712		
60227901015	**S-LMW-FB-2**	EPA 300.0	449698		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

multi COC

60-227901

WO#: 60227402

60227402

a 9/14/16

COC # 3

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: CF +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 0.8, 13.6 **Corr. Factor** CF +1.1 CF -0.1 **Corrected** 1.9, 14.7

Date and initials of person examining contents: 9/16/16

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	pH
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: water	☐Yes ☐No ☑N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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: _____

Jann Check 9/16/16

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
www.pacelabs.com

Section A — Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60227452
1	S-LMW-1S	WT	G			9/15/16	1520		4	1		3							1	1	1	1	2		615
2	S-LMW-2S	WT	G			9/14/16	1540		4	1		3							1	1	1	1	2		44
3	S-LMW-3S	WT	G			9/15/16	1420		4	1		3							1	1	1	1	2		617
4	S-LMW-4S	WT	G			9/15/16	1420		4	1		3							1	1	1	1	2		617
5	~~S-LMW-5S~~	WT	G																						
6	~~S-LMW-6S~~	WT	G																						
7	~~S-LMW-7S~~	WT	G																						
8	~~S-LMW-8S~~	WT	G																						
9	~~S-LMW-9S~~	WT	G																						
10	S-BMW-1S	WT	G			9/14/16	1203		4	6+3									1	1	1	1	2		615
11	~~S-BMW-2S~~	WT	G																						
12	~~S-LMW-DUP-1~~	WT	G																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	[illegible]	9/15/16	1700	[illegible]						
	[illegible]	9/15-16	1702	[illegible]	9/16/16	430	1.9	Y	Y	Y
							14.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/15/16

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

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical™ www.pacelabs.com

Page: 2 of 2

Section A
Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B
Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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)	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)	Metals* (N)	Chloride/Fluoride/Sulfate (N)	TDS (N)	pH (N)	Radium 226 & 228 (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 6027452
1	~~S-LMW-DUP-2~~	~~WT~~	~~G~~																						
2	S-LMW-FB-1	WT	G			9/15/16	1520		4	1		3							1	1	1	1	2		1(BN)^{1.5} 1(BN) 2(BN) 020
3	~~S-LMW-FB-2~~	~~WT~~	~~G~~																						
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS

*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg
EPA 200.8: Sb, As, Cd, Cr, Se, Tl

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
[illegible] / Golder	9/15/16	1700	[illegible] / PASI	9/15/16	1700				
[illegible] / PASI	9/15/16	1725	[illegible] / Pace	9/16/16	430	1.9	Y	Y	Y
						14.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Fosrim

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/15/16

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60227901

60227901

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: CF +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 13.1 19.7 17.1 4.1 2.9 **Corr. Factor** CF +1.1 / CF -0.1 **Corrected** 14.2 20.8 18.2 5.2 4.0

Date and initials of person examining contents: JB 9/17

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	pH
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	
Cyanide water sample checks: ☒ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 9/19/16

Project Manager Review: _____ Date: _____

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — **Required** Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — **Required** Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60227901
1	S-LMW-1S	WT	G																					
2	S-LMW-2S	WT	G																					
3	S-LMW-3S	WT	G																					
4	S-LMW-4S	WT	G																					
5	S-LMW-5S	WT	G	9/16/14	1425				4	1		3							1	1	1	1	2		BP3N BP3N (2) BP3N 008
6	S-LMW-6S	WT	G	9/16/14	1309				4	1		3							1	1	1	1	2		009
7	S-LMW-7S	WT	G	9/16/14	1310				4	1		3							1	1	1	1	2		(3) BP3N (3) BP3N (6) BP3N 010
8	S-LMW-8S	WT	G	9/16/14	1150				12	3		9							3	3	3	3	6		BP3N BP3N (2) BP3N 012
9	S-LMW-9S	WT	G	9/16/14	1150				4	1		3							1	1	1	1	2		
10	S-BMW-1S	WT	G																					
11	S-BMW-2S	WT	G																					
12	S-LMW-DUP-1	WT	G	9/16/14	←				4	1		3							1	1	1	1	2		013

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	[signature]	9/16/14	1600	[signature] PACE	9/16/14	1600
	[signature] PACE	9-16-16	1700	[signature]	9/16	2045

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/16/14

*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

Pace Analytical™ www.pacelabs.com

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	636-724-9191 Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - Fly Ash	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B	Pace Profile #:	9285

REGULATORY AGENCY

NPDES (GROUND WATER) DRINKING WATER

UST RCRA OTHER _____

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX / CODE	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
		DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; OT; TS																	N	N	N	N	N			
1	S-LMW-DUP-2		WT	G			9/14/16	—		4	1		3							1	1	1	1	2		60227901 BP3N BP3N (2) BP1N Zn 014
2	S-LMW-FB-1		WT	G																						
3	S-LMW-FB-2		WT	G			9/14/16	1353		4	1		3							1	1	1	1	2		↓ ↓ ↓ 015
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	(9/16/16)	9/14/16	1600		9/16/16	1620				
		9-16-16	1700		9/16	2045	5.2	Y	Y	Y
							4.0	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:	Jeff Ingram					
SIGNATURE of SAMPLER:		DATE Signed (MM/DD/YY): 9/14/16				

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

December 23, 2016

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory between November 09, 2016 and November 18, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60231804001	**S-LMW-1S**	Water	11/08/16 10:25	11/09/16 04:20
60231804002	**S-LMW-2S**	Water	11/08/16 15:36	11/09/16 04:20
60231804003	**S-LMW-3S**	Water	11/08/16 15:20	11/09/16 04:20
60231804004	**S-LMW-5S**	Water	11/08/16 13:10	11/09/16 04:20
60231804005	**S-LMW-6S**	Water	11/08/16 12:45	11/09/16 04:20
60231804006	**S-LMW-7S**	Water	11/08/16 13:53	11/09/16 04:20
60231804007	**S-LMW-8S**	Water	11/08/16 14:03	11/09/16 04:20
60231804008	**S-BMW-1S**	Water	11/07/16 09:05	11/09/16 04:20
60231804009	**S-LMW-DUP-1**	Water	11/08/16 08:00	11/09/16 04:20
60231804010	**S-LMW-DUP-2**	Water	11/08/16 08:00	11/09/16 04:20
60231804011	**S-LMW-FB-1**	Water	11/08/16 15:00	11/09/16 04:20
60231804012	**S-LMW-1S MS**	Water	11/08/16 10:25	11/09/16 04:20
60231804013	**S-LMW-1S MSD**	Water	11/08/16 10:25	11/09/16 04:20
60232057001	**S-LMW-4S**	Water	11/09/16 14:20	11/11/16 04:00
60232057002	**S-LMW-9S**	Water	11/09/16 15:10	11/11/16 04:00
60232057003	**S-LMW-FB-2**	Water	11/09/16 15:03	11/11/16 04:00
60232580001	**S-BMS-3S**	Water	11/17/16 12:50	11/18/16 03:35

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231804001	**S-LMW-1S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804002	**S-LMW-2S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804003	**S-LMW-3S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JMC1	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804004	**S-LMW-5S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804005	**S-LMW-6S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804006	**S-LMW-7S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804007	**S-LMW-8S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804008	**S-BMW-1S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804009	**S-LMW-DUP-1**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804010	**S-LMW-DUP-2**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804011	**S-LMW-FB-1**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60231804012	**S-LMW-1S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60231804013	**S-LMW-1S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60232057001	**S-LMW-4S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDB	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60232057002	**S-LMW-9S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDB	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60232057003	**S-LMW-FB-2**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	ZBM	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDB	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60232580001	**S-BMS-3S**	EPA 200.7	NDJ	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-1S **Lab ID: 60231804001** Collected: 11/08/16 10:25 Received: 11/09/16 04:20 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								
Barium	**72.8**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 13:45	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 13:45	7440-41-7	
Boron	**1380**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 13:45	7440-42-8	
Calcium	**87400**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 13:45	7440-70-2	
Cobalt	**0.81J**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 13:45	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 13:45	7439-92-1	
Lithium	**17.9**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 13:45	7439-93-2	
Molybdenum	**65.0**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 13:45	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.35J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:16	7440-36-0	
Arsenic	**1.8**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:16	7440-38-2	
Cadmium	**0.044J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:16	7440-43-9	
Chromium	**0.47J**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:16	7440-47-3	
Selenium	**1.8**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:16	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**451**	mg/L	5.0	5.0	1		11/11/16 13:36		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**24.9**	mg/L	2.0	1.0	2		11/19/16 16:18	16887-00-6	M1
Fluoride	**0.26**	mg/L	0.20	0.027	1		11/18/16 20:52	16984-48-8	
Sulfate	**115**	mg/L	10.0	1.5	10		11/19/16 16:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-2S **Lab ID: 60231804002** Collected: 11/08/16 15:36 Received: 11/09/16 04:20 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								
Barium	**138**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 13:51	7440-39-3	
Beryllium	**0.40J**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 13:51	7440-41-7	
Boron	**10700**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 13:51	7440-42-8	
Calcium	**193000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 13:51	7440-70-2	
Cobalt	**5.2**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 13:51	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 13:51	7439-92-1	
Lithium	**33.9**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 13:51	7439-93-2	
Molybdenum	**1040**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 13:51	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.14J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:29	7440-36-0	
Arsenic	**1.3**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:29	7440-38-2	
Cadmium	**0.18J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:29	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:29	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:29	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:29	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:35	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**987**	mg/L	5.0	5.0	1		11/11/16 13:37		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**122**	mg/L	10.0	5.0	10		11/19/16 17:20	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.027	1		11/18/16 21:20	16984-48-8	
Sulfate	**245**	mg/L	20.0	3.1	20		11/19/16 17:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-3S **Lab ID: 60231804003** Collected: 11/08/16 15:20 Received: 11/09/16 04:20 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								
Barium	**125**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 13:53	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 13:53	7440-41-7	
Boron	**268**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 13:53	7440-42-8	
Calcium	**121000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 13:53	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 13:53	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 13:53	7439-92-1	
Lithium	**18.7**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 13:53	7439-93-2	
Molybdenum	**2.6J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 13:53	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.086J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:33	7440-36-0	
Arsenic	**0.46J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:33	7440-38-2	
Cadmium	**0.042J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:33	7440-43-9	
Chromium	**0.78J**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:33	7440-47-3	
Selenium	**2.6**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:33	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:33	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:37	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**494**	mg/L	5.0	5.0	1		11/11/16 13:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		11/19/16 08:24		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.7**	mg/L	1.0	0.50	1		11/18/16 21:34	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.027	1		11/18/16 21:34	16984-48-8	
Sulfate	**34.5**	mg/L	2.0	0.31	2		11/19/16 17:50	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-5S **Lab ID: 60231804004** Collected: 11/08/16 13:10 Received: 11/09/16 04:20 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								
Barium	**61.9**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 13:56	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 13:56	7440-41-7	
Boron	**14200**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 13:56	7440-42-8	
Calcium	**282000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 13:56	7440-70-2	
Cobalt	**1.1J**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 13:56	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 13:56	7439-92-1	
Lithium	**60.4**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 13:56	7439-93-2	
Molybdenum	**872**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 13:56	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:37	7440-36-0	
Arsenic	**0.39J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:37	7440-38-2	
Cadmium	**0.55**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:37	7440-43-9	
Chromium	**0.37J**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:37	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:37	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:40	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1720**	mg/L	5.0	5.0	1		11/11/16 13:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**31.4**	mg/L	2.0	1.0	2		11/19/16 18:37	16887-00-6	
Fluoride	**0.54**	mg/L	0.20	0.027	1		11/18/16 21:48	16984-48-8	
Sulfate	**1100**	mg/L	100	15.4	100		11/19/16 18:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-6S **Lab ID: 60231804005** Collected: 11/08/16 12:45 Received: 11/09/16 04:20 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								
Barium	**40.7**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:03	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:03	7440-41-7	
Boron	**13900**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:03	7440-42-8	
Calcium	**269000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:03	7440-70-2	
Cobalt	**7.2**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:03	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:03	7439-92-1	
Lithium	**26.8**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:03	7439-93-2	
Molybdenum	**1.4J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:03	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:42	7440-36-0	
Arsenic	**0.50J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:42	7440-38-2	
Cadmium	**0.60**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:42	7440-43-9	
Chromium	**0.48J**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:42	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:42	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:42	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:42	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1560**	mg/L	5.0	5.0	1		11/11/16 13:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.1**	mg/L	1.0	0.50	1		11/18/16 22:01	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.027	1		11/18/16 22:01	16984-48-8	
Sulfate	**823**	mg/L	100	15.4	100		11/19/16 19:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-7S **Lab ID: 60231804006** Collected: 11/08/16 13:53 Received: 11/09/16 04:20 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								
Barium	**123**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:05	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:05	7440-41-7	
Boron	**2370**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:05	7440-42-8	
Calcium	**227000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:05	7440-70-2	
Cobalt	**2.6J**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:05	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:05	7439-92-1	
Lithium	**25.2**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:05	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:05	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:59	7440-36-0	
Arsenic	**0.17J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:59	7440-38-2	
Cadmium	**0.26J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:59	7440-43-9	
Chromium	**0.37J**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:59	7440-47-3	
Selenium	**2.0**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:59	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:59	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:44	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1050**	mg/L	5.0	5.0	1		11/11/16 13:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.1**	mg/L	2.0	1.0	2		11/19/16 19:23	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.027	1		11/18/16 22:15	16984-48-8	
Sulfate	**335**	mg/L	20.0	3.1	20		11/19/16 19:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-8S **Lab ID: 60231804007** Collected: 11/08/16 14:03 Received: 11/09/16 04:20 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								
Barium	**96.8**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:08	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:08	7440-41-7	
Boron	**5890**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:08	7440-42-8	
Calcium	**157000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:08	7440-70-2	
Cobalt	**4.0J**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:08	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:08	7439-92-1	
Lithium	**23.0**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:08	7439-93-2	
Molybdenum	**148**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:08	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.17J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 15:03	7440-36-0	
Arsenic	**1.0**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 15:03	7440-38-2	
Cadmium	**0.081J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 15:03	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 15:03	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 15:03	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 15:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**823**	mg/L	5.0	5.0	1		11/11/16 13:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**37.3**	mg/L	5.0	2.5	5		11/19/16 19:54	16887-00-6	
Fluoride	**0.98**	mg/L	0.20	0.027	1		11/18/16 22:57	16984-48-8	
Sulfate	**386**	mg/L	50.0	7.7	50		11/19/16 20:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-BMW-1S **Lab ID: 60231804008** Collected: 11/07/16 09:05 Received: 11/09/16 04:20 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								
Barium	**139**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:10	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:10	7440-41-7	
Boron	**107**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:10	7440-42-8	
Calcium	**151000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:10	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:10	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:10	7439-92-1	
Lithium	**7.4J**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:10	7439-93-2	
Molybdenum	**2.7J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:10	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.084J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 15:08	7440-36-0	
Arsenic	**0.91J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 15:08	7440-38-2	
Cadmium	**0.10J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 15:08	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 15:08	7440-47-3	
Selenium	**0.18J**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 15:08	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 15:08	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**540**	mg/L	5.0	5.0	1		11/10/16 11:25		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		11/12/16 11:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.2**	mg/L	1.0	0.50	1		11/18/16 23:11	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.027	1		11/18/16 23:11	16984-48-8	
Sulfate	**34.8**	mg/L	2.0	0.31	2		11/19/16 20:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-DUP-1 **Lab ID: 60231804009** Collected: 11/08/16 08:00 Received: 11/09/16 04:20 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								
Barium	**40.8**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:12	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:12	7440-41-7	
Boron	**14000**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:12	7440-42-8	
Calcium	**268000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:12	7440-70-2	
Cobalt	**7.4**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:12	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:12	7439-92-1	
Lithium	**25.9**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:12	7439-93-2	
Molybdenum	**0.96J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:12	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 15:12	7440-36-0	
Arsenic	**0.46J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 15:12	7440-38-2	
Cadmium	**0.56**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 15:12	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 15:12	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 15:12	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 15:12	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:55	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1600**	mg/L	5.0	5.0	1		11/11/16 13:40		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		11/12/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.2**	mg/L	1.0	0.50	1		11/18/16 23:25	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.027	1		11/18/16 23:25	16984-48-8	
Sulfate	**827**	mg/L	100	15.4	100		11/19/16 20:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-DUP-2 **Lab ID: 60231804010** Collected: 11/08/16 08:00 Received: 11/09/16 04:20 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								
Barium	**120**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:15	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:15	7440-41-7	
Boron	**2410**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:15	7440-42-8	
Calcium	**221000**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:15	7440-70-2	
Cobalt	**3.6J**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:15	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:15	7439-92-1	
Lithium	**24.5**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:15	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:15	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.089J**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 15:16	7440-36-0	
Arsenic	**0.24J**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 15:16	7440-38-2	
Cadmium	**0.27J**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 15:16	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 15:16	7440-47-3	
Selenium	**2.0**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 15:16	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 15:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 11:57	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1060**	mg/L	5.0	5.0	1		11/11/16 13:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		11/12/16 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.9**	mg/L	2.0	1.0	2		11/19/16 20:55	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.027	1		11/18/16 23:39	16984-48-8	
Sulfate	**332**	mg/L	20.0	3.1	20		11/19/16 21:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-FB-1 **Lab ID: 60231804011** Collected: 11/08/16 15:00 Received: 11/09/16 04:20 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								
Barium	**<0.58**	ug/L	5.0	0.58	1	11/09/16 17:00	11/11/16 14:17	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/09/16 17:00	11/11/16 14:17	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	11/09/16 17:00	11/11/16 14:17	7440-42-8	
Calcium	**99.0J**	ug/L	100	8.1	1	11/09/16 17:00	11/11/16 14:17	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	11/09/16 17:00	11/11/16 14:17	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/09/16 17:00	11/11/16 14:17	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	11/09/16 17:00	11/11/16 14:17	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	11/09/16 17:00	11/11/16 14:17	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	11/09/16 17:00	11/22/16 14:55	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	11/09/16 17:00	11/22/16 14:55	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	11/09/16 17:00	11/22/16 14:55	7440-43-9	
Chromium	**<0.34**	ug/L	1.0	0.34	1	11/09/16 17:00	11/22/16 14:55	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/09/16 17:00	11/22/16 14:55	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/09/16 17:00	11/22/16 14:55	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/17/16 15:00	11/18/16 12:00	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**5.5**	mg/L	5.0	5.0	1		11/11/16 13:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.7**	Std. Units	0.10	0.10	1		11/14/16 06:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		11/18/16 23:53	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		11/18/16 23:53	16984-48-8	
Sulfate	**<0.15**	mg/L	1.0	0.15	1		11/18/16 23:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-4S **Lab ID: 60232057001** Collected: 11/09/16 14:20 Received: 11/11/16 04:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**212**	ug/L	5.0	0.58	1	11/11/16 16:15	11/14/16 13:50	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/11/16 16:15	11/14/16 13:50	7440-41-7	
Boron	**163**	ug/L	100	50.0	1	11/11/16 16:15	11/14/16 13:50	7440-42-8	
Calcium	**129000**	ug/L	100	8.1	1	11/11/16 16:15	11/14/16 13:50	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	11/11/16 16:15	11/14/16 13:50	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/11/16 16:15	11/14/16 13:50	7439-92-1	
Lithium	**22.7**	ug/L	10.0	4.9	1	11/11/16 16:15	11/14/16 13:50	7439-93-2	
Molybdenum	**2.6J**	ug/L	20.0	0.52	1	11/11/16 16:15	11/14/16 13:50	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.058	1	11/11/16 16:15	11/22/16 21:12	7440-36-0	
Arsenic	**0.47J**	ug/L	1.0	0.10	1	11/11/16 16:15	11/22/16 21:12	7440-38-2	
Cadmium	**0.053J**	ug/L	0.50	0.029	1	11/11/16 16:15	11/22/16 21:12	7440-43-9	
Chromium	**1.0**	ug/L	1.0	0.34	1	11/11/16 16:15	11/22/16 21:12	7440-47-3	
Selenium	**5.3**	ug/L	1.0	0.18	1	11/11/16 16:15	11/22/16 21:12	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/11/16 16:15	11/22/16 21:12	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/23/16 08:35	11/23/16 12:10	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**525**	mg/L	5.0	5.0	1		11/16/16 16:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		11/14/16 10:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.0**	mg/L	1.0	0.50	1		12/04/16 01:34	16887-00-6	
Fluoride	**0.20J**	mg/L	0.20	0.027	1		12/04/16 01:34	16984-48-8	
Sulfate	**22.9**	mg/L	2.0	0.31	2		12/05/16 00:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-9S **Lab ID: 60232057002** Collected: 11/09/16 15:10 Received: 11/11/16 04:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**74.3**	ug/L	5.0	0.58	1	11/11/16 16:15	11/14/16 13:52	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/11/16 16:15	11/14/16 13:52	7440-41-7	
Boron	**1400**	ug/L	100	50.0	1	11/11/16 16:15	11/14/16 13:52	7440-42-8	
Calcium	**218000**	ug/L	100	8.1	1	11/11/16 16:15	11/14/16 13:52	7440-70-2	
Cobalt	**9.7**	ug/L	5.0	0.72	1	11/11/16 16:15	11/14/16 13:52	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/11/16 16:15	11/14/16 13:52	7439-92-1	
Lithium	**51.0**	ug/L	10.0	4.9	1	11/11/16 16:15	11/14/16 13:52	7439-93-2	
Molybdenum	**7.4J**	ug/L	20.0	0.52	1	11/11/16 16:15	11/14/16 13:52	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.086J**	ug/L	1.0	0.058	1	11/11/16 16:15	11/22/16 21:17	7440-36-0	
Arsenic	**0.85J**	ug/L	1.0	0.10	1	11/11/16 16:15	11/22/16 21:17	7440-38-2	
Cadmium	**0.18J**	ug/L	0.50	0.029	1	11/11/16 16:15	11/22/16 21:17	7440-43-9	
Chromium	**0.70J**	ug/L	1.0	0.34	1	11/11/16 16:15	11/22/16 21:17	7440-47-3	
Selenium	**0.37J**	ug/L	1.0	0.18	1	11/11/16 16:15	11/22/16 21:17	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/11/16 16:15	11/22/16 21:17	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/23/16 08:35	11/23/16 12:12	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1150**	mg/L	5.0	5.0	1		11/16/16 16:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.8**	Std. Units	0.10	0.10	1		11/14/16 10:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**74.0**	mg/L	10.0	5.0	10		12/05/16 00:21	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.027	1		12/04/16 01:48	16984-48-8	
Sulfate	**310**	mg/L	50.0	7.7	50		12/05/16 00:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-FB-2 **Lab ID: 60232057003** Collected: 11/09/16 15:03 Received: 11/11/16 04:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**<0.58**	ug/L	5.0	0.58	1	11/11/16 16:15	11/14/16 13:54	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/11/16 16:15	11/14/16 13:54	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	11/11/16 16:15	11/14/16 13:54	7440-42-8	
Calcium	**126**	ug/L	100	8.1	1	11/11/16 16:15	11/14/16 13:54	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	11/11/16 16:15	11/14/16 13:54	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/11/16 16:15	11/14/16 13:54	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	11/11/16 16:15	11/14/16 13:54	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	11/11/16 16:15	11/14/16 13:54	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	11/11/16 16:15	11/22/16 20:37	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	11/11/16 16:15	11/22/16 20:37	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	11/11/16 16:15	11/22/16 20:37	7440-43-9	
Chromium	**0.62J**	ug/L	1.0	0.34	1	11/11/16 16:15	11/22/16 20:37	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	11/11/16 16:15	11/22/16 20:37	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/11/16 16:15	11/22/16 20:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	11/23/16 08:35	11/23/16 12:14	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/16/16 17:00		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.4**	Std. Units	0.10	0.10	1		11/14/16 10:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		12/04/16 02:02	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		12/04/16 02:02	16984-48-8	
Sulfate	**<0.15**	mg/L	1.0	0.15	1		12/04/16 02:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-BMS-3S **Lab ID: 60232580001** Collected: 11/17/16 12:50 Received: 11/18/16 03:35 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**194**	ug/L	5.0	0.58	1	11/18/16 16:30	11/23/16 14:39	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	11/18/16 16:30	11/23/16 14:39	7440-41-7	
Boron	**65.4J**	ug/L	100	50.0	1	11/18/16 16:30	11/23/16 14:39	7440-42-8	
Calcium	**124000**	ug/L	100	8.1	1	11/18/16 16:30	11/23/16 14:39	7440-70-2	
Cobalt	**2.0J**	ug/L	5.0	0.72	1	11/18/16 16:30	11/23/16 14:39	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	11/18/16 16:30	11/23/16 14:39	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	11/18/16 16:30	11/23/16 14:39	7439-93-2	
Molybdenum	**6.3J**	ug/L	20.0	0.52	1	11/18/16 16:30	11/23/16 14:39	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.36J**	ug/L	1.0	0.058	1	11/18/16 16:30	11/30/16 16:27	7440-36-0	B
Arsenic	**1.0**	ug/L	1.0	0.10	1	11/18/16 16:30	12/01/16 18:17	7440-38-2	
Cadmium	**0.056J**	ug/L	0.50	0.029	1	11/18/16 16:30	11/30/16 16:27	7440-43-9	B
Chromium	**0.50J**	ug/L	1.0	0.34	1	11/18/16 16:30	11/30/16 16:27	7440-47-3	
Selenium	**0.23J**	ug/L	1.0	0.18	1	11/18/16 16:30	11/30/16 16:27	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	11/18/16 16:30	11/30/16 16:27	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.043J**	ug/L	0.20	0.039	1	11/28/16 16:30	11/29/16 11:52	7439-97-6	B
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**438**	mg/L	5.0	5.0	1		11/23/16 15:29		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		11/30/16 16:23		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.1**	mg/L	1.0	0.50	1		12/09/16 10:34	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.027	1		12/09/16 10:34	16984-48-8	
Sulfate	**28.2**	mg/L	2.0	0.31	2		12/12/16 01:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455411 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

METHOD BLANK: 1864691 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	11/18/16 11:24	

LABORATORY CONTROL SAMPLE: 1864692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.5	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1864693 1864694

Parameter	Units	60231804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.2	5.1	104	101	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 456114 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1867553 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	11/23/16 11:30	

LABORATORY CONTROL SAMPLE: 1867554

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1867555 1867556

Parameter	Units	60232056010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.039	5	5	5.3	5.0	105	100	75-125	5	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 456625 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60232580001

METHOD BLANK: 1869658 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	0.045J	0.20	0.039	11/29/16 10:56	

LABORATORY CONTROL SAMPLE: 1869659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.8	115	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1869660 1869661

Parameter	Units	60232589004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.044J	5	5	5.5	5.8	110	115	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454175 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

METHOD BLANK: 1859682 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	11/11/16 13:06	
Beryllium	ug/L	<0.26	1.0	0.26	11/11/16 13:06	
Boron	ug/L	<50.0	100	50.0	11/11/16 13:06	
Calcium	ug/L	32.2J	100	8.1	11/11/16 13:06	
Cobalt	ug/L	<0.72	5.0	0.72	11/11/16 13:06	
Lead	ug/L	<2.5	5.0	2.5	11/11/16 13:06	
Lithium	ug/L	<4.9	10.0	4.9	11/11/16 13:06	
Molybdenum	ug/L	0.94J	20.0	0.52	11/11/16 13:06	

LABORATORY CONTROL SAMPLE: 1859683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	983	98	85-115	
Beryllium	ug/L	1000	1000	100	85-115	
Boron	ug/L	1000	1000	100	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	980	98	85-115	
Molybdenum	ug/L	1000	1050	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1859684 1859685

Parameter	Units	60231802004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	72.0	1000	1000	1040	1050	97	98	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	988	992	99	99	70-130	0	20	
Boron	ug/L	24600	1000	1000	25100	25200	42	52	70-130	0	20	M1
Calcium	ug/L	186000	10000	10000	190000	189000	46	30	70-130	1	20	M1
Cobalt	ug/L	<0.72	1000	1000	986	1000	99	100	70-130	2	20	
Lead	ug/L	5.6	1000	1000	977	993	97	99	70-130	2	20	
Lithium	ug/L	41.3	1000	1000	1020	1040	98	99	70-130	1	20	
Molybdenum	ug/L	7190	1000	1000	8020	8100	83	90	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1859686 1859687

Parameter	Units	60231804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	72.8	1000	1000	1050	1060	98	98	70-130	0	20	
Beryllium	ug/L	<0.26	1000	1000	990	998	99	100	70-130	1	20	
Boron	ug/L	1380	1000	1000	2400	2410	103	103	70-130	0	20	
Calcium	ug/L	87400	10000	10000	97200	98300	97	108	70-130	1	20	
Cobalt	ug/L	0.81J	1000	1000	1000	1010	100	101	70-130	1	20	
Lead	ug/L	<2.5	1000	1000	1000	1020	100	102	70-130	1	20	
Lithium	ug/L	17.9	1000	1000	1010	1010	99	99	70-130	0	20	
Molybdenum	ug/L	65.0	1000	1000	1130	1140	106	108	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454620 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1861718 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	11/14/16 13:04	
Beryllium	ug/L	<0.26	1.0	0.26	11/14/16 13:04	
Boron	ug/L	<50.0	100	50.0	11/14/16 13:04	
Calcium	ug/L	18.4J	100	8.1	11/14/16 13:04	
Cobalt	ug/L	<0.72	5.0	0.72	11/14/16 13:04	
Lead	ug/L	<2.5	5.0	2.5	11/14/16 13:04	
Lithium	ug/L	<4.9	10.0	4.9	11/14/16 13:04	
Molybdenum	ug/L	0.65J	20.0	0.52	11/14/16 13:04	

LABORATORY CONTROL SAMPLE: 1861719

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	921	92	85-115	
Beryllium	ug/L	1000	926	93	85-115	
Boron	ug/L	1000	885	89	85-115	
Calcium	ug/L	10000	9320	93	85-115	
Cobalt	ug/L	1000	920	92	85-115	
Lead	ug/L	1000	933	93	85-115	
Lithium	ug/L	1000	917	92	85-115	
Molybdenum	ug/L	1000	948	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1861720 1861721

Parameter	Units	60232056010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	256	1000	1000	1190	1240	93	98	70-130	4	20	
Beryllium	ug/L	<0.26	1000	1000	955	1000	95	100	70-130	5	20	
Boron	ug/L	79.5J	1000	1000	1010	1050	93	97	70-130	4	20	
Calcium	ug/L	126000	10000	10000	132000	135000	67	91	70-130	2	20	M1
Cobalt	ug/L	<0.72	1000	1000	911	956	91	96	70-130	5	20	
Lead	ug/L	<2.5	1000	1000	917	963	92	96	70-130	5	20	
Lithium	ug/L	41.4	1000	1000	1000	1050	96	101	70-130	5	20	
Molybdenum	ug/L	1.5J	1000	1000	974	1020	97	102	70-130	5	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

MATRIX SPIKE SAMPLE: 1861722

Parameter	Units	60232056011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	204	1000	1160	95	70-130	
Beryllium	ug/L	0.42J	1000	976	98	70-130	
Boron	ug/L	277	1000	1220	95	70-130	
Calcium	ug/L	107000	10000	115000	79	70-130	
Cobalt	ug/L	5.4	1000	942	94	70-130	
Lead	ug/L	<2.5	1000	945	94	70-130	
Lithium	ug/L	27.5	1000	1000	97	70-130	
Molybdenum	ug/L	4.2J	1000	1000	100	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455694
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60232580001

METHOD BLANK: 1865875
Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	11/23/16 14:35	
Beryllium	ug/L	<0.26	1.0	0.26	11/23/16 14:35	
Boron	ug/L	<50.0	100	50.0	11/23/16 14:35	
Calcium	ug/L	<8.1	100	8.1	11/23/16 14:35	
Cobalt	ug/L	<0.72	5.0	0.72	11/23/16 14:35	
Lead	ug/L	<2.5	5.0	2.5	11/23/16 14:35	
Lithium	ug/L	<4.9	10.0	4.9	11/23/16 14:35	
Molybdenum	ug/L	<0.52	20.0	0.52	11/23/16 14:35	

LABORATORY CONTROL SAMPLE: 1865876

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1000	100	85-115	
Beryllium	ug/L	1000	983	98	85-115	
Boron	ug/L	1000	979	98	85-115	
Calcium	ug/L	10000	9840	98	85-115	
Cobalt	ug/L	1000	1020	102	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	993	99	85-115	
Molybdenum	ug/L	1000	1050	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1865877 1865878

Parameter	Units	60232589004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	256	1000	1000	1260	1280	100	103	70-130	2	20	
Beryllium	ug/L	<0.26	1000	1000	1000	1020	100	102	70-130	2	20	
Boron	ug/L	4450	1000	1000	5380	5440	93	98	70-130	1	20	
Calcium	ug/L	69700	10000	10000	78200	79200	85	95	70-130	1	20	
Cobalt	ug/L	<0.72	1000	1000	1010	1020	101	102	70-130	1	20	
Lead	ug/L	<2.5	1000	1000	991	1010	99	101	70-130	2	20	
Lithium	ug/L	39.9	1000	1000	1050	1070	101	103	70-130	2	20	
Molybdenum	ug/L	109	1000	1000	1170	1190	106	108	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

MATRIX SPIKE SAMPLE: 1865879

Parameter	Units	60232589006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	166	1000	1150	99	70-130	
Beryllium	ug/L	<0.26	1000	995	99	70-130	
Boron	ug/L	1820	1000	2800	97	70-130	
Calcium	ug/L	90200	10000	98700	85	70-130	
Cobalt	ug/L	<0.72	1000	1000	100	70-130	
Lead	ug/L	<2.5	1000	998	100	70-130	
Lithium	ug/L	<4.9	1000	998	100	70-130	
Molybdenum	ug/L	1.0J	1000	1060	106	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454179 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

METHOD BLANK: 1859707 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	11/22/16 13:10	
Arsenic	ug/L	<0.10	1.0	0.10	11/22/16 13:10	
Cadmium	ug/L	<0.029	0.50	0.029	11/22/16 13:10	
Chromium	ug/L	<0.34	1.0	0.34	11/22/16 13:10	
Selenium	ug/L	<0.18	1.0	0.18	11/22/16 13:10	
Thallium	ug/L	<0.50	1.0	0.50	11/22/16 13:10	

LABORATORY CONTROL SAMPLE: 1859708

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.9	97	85-115	
Arsenic	ug/L	40	38.8	97	85-115	
Cadmium	ug/L	40	39.1	98	85-115	
Chromium	ug/L	40	40.2	100	85-115	
Selenium	ug/L	40	38.3	96	85-115	
Thallium	ug/L	40	40.1	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1859709 1859710

Parameter	Units	60231802004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.058	40	40	39.2	37.6	98	94	70-130	4	20	
Arsenic	ug/L	0.18J	40	40	39.6	36.9	99	92	70-130	7	20	
Cadmium	ug/L	0.13J	40	40	38.1	36.3	95	90	70-130	5	20	
Chromium	ug/L	0.34J	40	40	39.7	37.3	98	92	70-130	6	20	
Selenium	ug/L	0.22J	40	40	37.2	34.8	92	86	70-130	7	20	
Thallium	ug/L	<0.50	40	40	41.3	40.0	103	100	70-130	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1859711 1859712

Parameter	Units	60231804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.35J	40	40	37.0	32.8	92	81	70-130	12	20	
Arsenic	ug/L	1.8	40	40	38.3	34.8	91	83	70-130	9	20	
Cadmium	ug/L	0.044J	40	40	35.6	32.0	89	80	70-130	11	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1859711 1859712

Parameter	Units	60231804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	ug/L	0.47J	40	40	37.0	32.8	91	81	70-130	12	20	
Selenium	ug/L	1.8	40	40	35.2	32.6	84	77	70-130	8	20	
Thallium	ug/L	<0.50	40	40	37.6	33.6	94	84	70-130	11	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454621 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1861723 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	11/22/16 19:45	
Arsenic	ug/L	<0.10	1.0	0.10	11/22/16 19:45	
Cadmium	ug/L	<0.029	0.50	0.029	11/22/16 19:45	
Chromium	ug/L	<0.34	1.0	0.34	11/22/16 19:45	
Selenium	ug/L	<0.18	1.0	0.18	11/22/16 19:45	
Thallium	ug/L	<0.50	1.0	0.50	11/22/16 19:45	

LABORATORY CONTROL SAMPLE: 1861724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.3	101	85-115	
Arsenic	ug/L	40	40.3	101	85-115	
Cadmium	ug/L	40	40.1	100	85-115	
Chromium	ug/L	40	40.7	102	85-115	
Selenium	ug/L	40	39.7	99	85-115	
Thallium	ug/L	40	38.8	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1861725 1861726

Parameter	Units	60232056010 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	37.2	38.5	93	96	70-130	3	20	
Arsenic	ug/L	0.44J	40	40	37.5	38.4	93	95	70-130	2	20	
Cadmium	ug/L	0.089J	40	40	35.9	37.0	90	92	70-130	3	20	
Chromium	ug/L	0.62J	40	40	38.4	38.9	94	96	70-130	1	20	
Selenium	ug/L	9.1	40	40	41.9	42.6	82	84	70-130	2	20	
Thallium	ug/L	<0.50	40	40	35.9	37.2	90	93	70-130	4	20	

MATRIX SPIKE SAMPLE: 1861727

Parameter	Units	60232056012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	<0.058	40	37.6	94	70-130	
Arsenic	ug/L	<0.10	40	37.8	94	70-130	
Cadmium	ug/L	<0.029	40	38.1	95	70-130	
Chromium	ug/L	0.64J	40	38.9	96	70-130	
Selenium	ug/L	<0.18	40	36.8	92	70-130	
Thallium	ug/L	<0.50	40	37.5	94	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455691 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60232580001

METHOD BLANK: 1865866 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	0.18J	1.0	0.058	11/30/16 16:14	
Arsenic	ug/L	<0.10	1.0	0.10	12/01/16 17:55	
Cadmium	ug/L	0.046J	0.50	0.029	11/30/16 16:14	
Chromium	ug/L	<0.34	1.0	0.34	11/30/16 16:14	
Selenium	ug/L	<0.18	1.0	0.18	11/30/16 16:14	
Thallium	ug/L	<0.50	1.0	0.50	11/30/16 16:14	

LABORATORY CONTROL SAMPLE: 1865867

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.8	105	85-115	
Arsenic	ug/L	40	39.4	98	85-115	
Cadmium	ug/L	40	40.4	101	85-115	
Chromium	ug/L	40	41.4	103	85-115	
Selenium	ug/L	40	39.5	99	85-115	
Thallium	ug/L	40	38.1	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1865868 1865869

Parameter	Units	60232589004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.18J	40	40	42.4	42.0	106	105	70-130	1	20	
Arsenic	ug/L	6.4	40	40	47.1	45.0	102	96	70-130	4	20	
Cadmium	ug/L	0.032J	40	40	39.6	39.3	99	98	70-130	1	20	
Chromium	ug/L	0.57J	40	40	42.1	40.8	104	101	70-130	3	20	
Selenium	ug/L	<0.18	40	40	38.1	37.6	95	94	70-130	1	20	
Thallium	ug/L	<0.50	40	40	40.6	39.9	101	100	70-130	2	20	

MATRIX SPIKE SAMPLE: 1865870

Parameter	Units	60232589005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.20J	40	42.0	105	70-130	
Arsenic	ug/L	4.3	40	46.9	106	70-130	
Cadmium	ug/L	0.048J	40	39.5	99	70-130	
Chromium	ug/L	0.51J	40	41.7	103	70-130	
Selenium	ug/L	<0.18	40	38.4	96	70-130	
Thallium	ug/L	<0.50	40	40.3	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454266
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60231804008

METHOD BLANK: 1860122 Matrix: Water
Associated Lab Samples: 60231804008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/10/16 11:13	

LABORATORY CONTROL SAMPLE: 1860123

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	955	96	80-120	

SAMPLE DUPLICATE: 1860124

Parameter	Units	60231747006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	644	643	0	10	

SAMPLE DUPLICATE: 1860125

Parameter	Units	60231802004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1020	1030	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454444 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804009, 60231804010, 60231804011

METHOD BLANK: 1860978 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804009, 60231804010, 60231804011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/11/16 13:30	

LABORATORY CONTROL SAMPLE: 1860979

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	953	95	80-120	

SAMPLE DUPLICATE: 1860980

Parameter	Units	60231927001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6220	6130	2	10	

SAMPLE DUPLICATE: 1860981

Parameter	Units	60231804001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	451	449	0	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455196 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1863882 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/16/16 16:51	

LABORATORY CONTROL SAMPLE: 1863883

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

SAMPLE DUPLICATE: 1863884

Parameter	Units	60232056001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	483	393	21	10	D6

SAMPLE DUPLICATE: 1863885

Parameter	Units	60232056010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	563	589	5	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 456308 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60232580001

METHOD BLANK: 1868508 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/23/16 15:12	

LABORATORY CONTROL SAMPLE: 1868509

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

SAMPLE DUPLICATE: 1867313

Parameter	Units	60232589004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	406	395	3	10	

SAMPLE DUPLICATE: 1868510

Parameter	Units	60232503004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	5280	5400	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454662
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60231804008

SAMPLE DUPLICATE: 1862079

Parameter	Units	60231501003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	4.8	4.8	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454663
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60231804009, 60231804010

SAMPLE DUPLICATE: 1862080

Parameter	Units	60231802004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454699 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60231804001, 60231804002, 60231804004, 60231804005, 60231804006, 60231804007, 60231804011

SAMPLE DUPLICATE: 1862311

Parameter	Units	60231804001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 454701 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60232057001, 60232057002, 60232057003

SAMPLE DUPLICATE: 1862313

Parameter	Units	60231930001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.3	8.3	0	5	H6

SAMPLE DUPLICATE: 1862314

Parameter	Units	60232056010 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.1	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455737
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60231804003

SAMPLE DUPLICATE: 1866223

Parameter	Units	60231804003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.2	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 457036
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60232580001

SAMPLE DUPLICATE: 1871119

Parameter	Units	60232598006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455675 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

METHOD BLANK: 1865810 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	11/18/16 17:23	
Fluoride	mg/L	<0.027	0.20	0.027	11/18/16 17:23	
Sulfate	mg/L	<0.15	1.0	0.15	11/18/16 17:23	

LABORATORY CONTROL SAMPLE: 1865811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1865812 1865813

Parameter	Units	60231802004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.78	2.5	2.5	3.6	3.6	112	114	80-120	1	15	

MATRIX SPIKE SAMPLE: 1865814

Parameter	Units	60231804001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.26	2.5	3.2	116	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 455761 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010

METHOD BLANK: 1866337 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	11/19/16 08:46	
Sulfate	mg/L	<0.15	1.0	0.15	11/19/16 08:46	

LABORATORY CONTROL SAMPLE: 1866338

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1866339 1866340

Parameter	Units	60231802004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	24.1	10	10	35.9	36.0	118	119	80-120	0	15	
Sulfate	mg/L	600	250	250	836	837	94	95	80-120	0	15	

MATRIX SPIKE SAMPLE: 1866341

Parameter	Units	60231804001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	24.9	10	37.1	122	80-120	M1
Sulfate	mg/L	115	50	167	103	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 457500 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1873090 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/03/16 20:42	
Fluoride	mg/L	<0.027	0.20	0.027	12/03/16 20:42	
Sulfate	mg/L	<0.15	1.0	0.15	12/03/16 20:42	

LABORATORY CONTROL SAMPLE: 1873091

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	102	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1873092 1873093

Parameter	Units	60232174001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.24	2.5	2.5	3.2	3.2	117	116	80-120	0	15	

MATRIX SPIKE SAMPLE: 1873094

Parameter	Units	60232174003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.091J	2.5	3.0	117	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 457515 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60232057001, 60232057002

METHOD BLANK: 1873341 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/04/16 16:24	
Sulfate	mg/L	<0.15	1.0	0.15	12/04/16 16:24	

LABORATORY CONTROL SAMPLE: 1873342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	4.6	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1873343 1873344

Parameter	Units	60232174001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	42.2	50	50	97.2	97.5	110	111	80-120	0	15	
Sulfate	mg/L	99.1	50	50	157	157	115	116	80-120	0	15	

MATRIX SPIKE SAMPLE: 1873345

Parameter	Units	60232174003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	23.9	10	35.6	117	80-120	
Sulfate	mg/L	348	250	625	111	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 458214
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60232580001

METHOD BLANK: 1875991 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/09/16 08:34	
Fluoride	mg/L	<0.027	0.20	0.027	12/09/16 08:34	

LABORATORY CONTROL SAMPLE: 1875992

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1875993 1875994

Parameter	Units	60232579001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	8.5	5	5	14.6	14.6	122	121	80-120	0	15	M1
Fluoride	mg/L	0.28	2.5	2.5	3.3	3.3	122	122	80-120	1	15	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 458452
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60232580001

METHOD BLANK: 1876996 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.15	1.0	0.15	12/11/16 17:25	

LABORATORY CONTROL SAMPLE: 1876997

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

MATRIX SPIKE SAMPLE: 1877000

Parameter	Units	60232361003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	89.9	50	155	130	80-120	M1

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-1S **Lab ID: 60231804001** Collected: 11/08/16 10:25 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.245 ± 0.425 (1.07) C:NA T:89%**	pCi/L	12/16/16 12:23	13982-63-3	
Radium-228	EPA 904.0	**-0.403 ± 0.503 (1.20) C:70% T:80%**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-2S **Lab ID: 60231804002** Collected: 11/08/16 15:36 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.236 ± 0.599 (1.11) C:NA T:92%**	pCi/L	12/16/16 12:40	13982-63-3	
Radium-228	EPA 904.0	**0.107 ± 0.334 (0.751) C:79% T:82%**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-3S **Lab ID: 60231804003** Collected: 11/08/16 15:20 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.235 ± 0.408 (0.729) C:NA T:95%**	pCi/L	12/16/16 12:41	13982-63-3	
Radium-228	EPA 904.0	**1.41 ± 0.531 (0.803) C:70% T:86%**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-5S **Lab ID: 60231804004** Collected: 11/08/16 13:10 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.363 (0.813) C:NA T:99%**	pCi/L	12/16/16 12:41	13982-63-3	
Radium-228	EPA 904.0	**0.163 ± 0.434 (0.969) C:72% T:67%**	pCi/L	12/19/16 16:07	15262-20-1	

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-6S **Lab ID: 60231804005** Collected: 11/08/16 12:45 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0723 ± 0.330 (0.532) C:NA T:100%**	pCi/L	12/16/16 12:41	13982-63-3	
Radium-228	EPA 904.0	**-0.299 ± 0.335 (0.838) C:73% T:83%**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-7S **Lab ID: 60231804006** Collected: 11/08/16 13:53 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.152 ± 0.422 (0.818) C:NA T:92%**	pCi/L	12/16/16 19:42	13982-63-3	
Radium-228	EPA 904.0	**1.11 ± 0.493 (0.816) C:71% T:82%**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-8S **Lab ID: 60231804007** Collected: 11/08/16 14:03 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.149 ± 0.357 (0.893) C:NA T:93%**	pCi/L	12/16/16 19:42	13982-63-3	
Radium-228	EPA 904.0	**0.453 ± 0.340 (0.667) C:78% T:90%**	pCi/L	12/19/16 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-BMW-1S **Lab ID: 60231804008** Collected: 11/07/16 09:05 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.234 ± 0.460 (0.840) C:NA T:95%**	pCi/L	12/16/16 19:42	13982-63-3	
Radium-228	EPA 904.0	**0.402 ± 0.329 (0.651) C:76% T:86%**	pCi/L	12/19/16 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-DUP-1 **Lab ID: 60231804009** Collected: 11/08/16 08:00 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.171 ± 0.391 (0.232) C:NA T:92%**	pCi/L	12/16/16 19:42	13982-63-3	
Radium-228	EPA 904.0	**0.562 ± 0.354 (0.658) C:75% T:88%**	pCi/L	12/19/16 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-DUP-2 **Lab ID: 60231804010** Collected: 11/08/16 08:00 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.074 ± 0.432 (0.964) C:NA T:97%**	pCi/L	12/16/16 19:40	13982-63-3	
Radium-228	EPA 904.0	**0.569 ± 0.382 (0.718) C:73% T:77%**	pCi/L	12/19/16 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-FB-1 **Lab ID: 60231804011** Collected: 11/08/16 15:00 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.342 (0.766) C:NA T:98%**	pCi/L	12/16/16 19:43	13982-63-3	
Radium-228	EPA 904.0	**0.203 ± 0.360 (0.787) C:72% T:70%**	pCi/L	12/19/16 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-1S MS **Lab ID: 60231804012** Collected: 11/08/16 10:25 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**105.67 %REC ± NA (NA) C:NA T:NA**	pCi/L	12/20/16 10:48	13982-63-3	
Radium-228	EPA 904.0	**107.51 %REC ± NA (NA) C:NA T:NA**	pCi/L	12/19/16 16:07	15262-20-1	

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-1S MSD **Lab ID: 60231804013** Collected: 11/08/16 10:25 Received: 11/09/16 04:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**86.05 %REC 20.47 RPD ± NA (NA) C:NA T:NA**	pCi/L	12/16/16 20:26	13982-63-3	
Radium-228	EPA 904.0	**119.58 %REC 10.63 RPD ± NA (NA) C:NA T:NA**	pCi/L	12/19/16 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-4S **Lab ID: 60232057001** Collected: 11/09/16 14:20 Received: 11/11/16 04:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.156 ± 0.356 (0.840) C:NA T:91%**	pCi/L	12/16/16 20:28	13982-63-3	
Radium-228	EPA 904.0	**0.0629 ± 0.495 (1.12) C:56% T:83%**	pCi/L	12/19/16 16:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-9S **Lab ID: 60232057002** Collected: 11/09/16 15:10 Received: 11/11/16 04:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.220 ± 0.336 (0.540) C:NA T:96%**	pCi/L	12/16/16 20:38	13982-63-3	
Radium-228	EPA 904.0	**0.426 ± 0.490 (1.02) C:62% T:88%**	pCi/L	12/19/16 16:02	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-LMW-FB-2 **Lab ID: 60232057003** Collected: 11/09/16 15:03 Received: 11/11/16 04:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.071 ± 0.323 (0.656) C:NA T:95%**	pCi/L	12/16/16 20:51	13982-63-3	
Radium-228	EPA 904.0	**0.00960 ± 0.450 (1.02) C:62% T:78%**	pCi/L	12/19/16 16:00	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Sample: S-BMS-3S **Lab ID: 60232580001** Collected: 11/17/16 12:50 Received: 11/18/16 03:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.418 ± 0.434 (0.646) C:NA T:95%**	pCi/L	12/19/16 12:50	13982-63-3	
Radium-228	EPA 904.0	**1.14 ± 0.495 (0.813) C:70% T:86%**	pCi/L	12/20/16 15:33	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242588 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1192367 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0808 ± 0.369 (0.750) C:NA T:86%	pCi/L	12/16/16 20:28	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242561 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60232580001

METHOD BLANK: 1192292 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.133 ± 0.319 (0.615) C:NA T:96%	pCi/L	12/19/16 12:05	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242484 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011, 60231804012, 60231804013

METHOD BLANK: 1191925 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011, 60231804012, 60231804013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.304 ± 0.349 (0.206) C:NA T:94%	pCi/L	12/16/16 12:07	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242592 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60232057001, 60232057002, 60232057003

METHOD BLANK: 1192383 Matrix: Water
Associated Lab Samples: 60232057001, 60232057002, 60232057003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.120 ± 0.432 (0.961) C:67% T:74%	pCi/L	12/19/16 16:03	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242485 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011, 60231804012, 60231804013

METHOD BLANK: 1191926 Matrix: Water
Associated Lab Samples: 60231804001, 60231804002, 60231804003, 60231804004, 60231804005, 60231804006, 60231804007, 60231804008, 60231804009, 60231804010, 60231804011, 60231804012, 60231804013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.460 ± 0.408 (0.816) C:74% T:63%	pCi/L	12/19/16 16:09	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

QC Batch: 242562 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60232580001

METHOD BLANK: 1192293 Matrix: Water
Associated Lab Samples: 60232580001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.531 ± 0.446 (0.896) C:61% T:87%	pCi/L	12/20/16 11:48	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231804001	**S-LMW-1S**	EPA 200.7	454175	EPA 200.7	454324
60231804002	**S-LMW-2S**	EPA 200.7	454175	EPA 200.7	454324
60231804003	**S-LMW-3S**	EPA 200.7	454175	EPA 200.7	454324
60231804004	**S-LMW-5S**	EPA 200.7	454175	EPA 200.7	454324
60231804005	**S-LMW-6S**	EPA 200.7	454175	EPA 200.7	454324
60231804006	**S-LMW-7S**	EPA 200.7	454175	EPA 200.7	454324
60231804007	**S-LMW-8S**	EPA 200.7	454175	EPA 200.7	454324
60231804008	**S-BMW-1S**	EPA 200.7	454175	EPA 200.7	454324
60231804009	**S-LMW-DUP-1**	EPA 200.7	454175	EPA 200.7	454324
60231804010	**S-LMW-DUP-2**	EPA 200.7	454175	EPA 200.7	454324
60231804011	**S-LMW-FB-1**	EPA 200.7	454175	EPA 200.7	454324
60232057001	**S-LMW-4S**	EPA 200.7	454620	EPA 200.7	454778
60232057002	**S-LMW-9S**	EPA 200.7	454620	EPA 200.7	454778
60232057003	**S-LMW-FB-2**	EPA 200.7	454620	EPA 200.7	454778
60232580001	**S-BMS-3S**	EPA 200.7	455694	EPA 200.7	455911
60231804001	**S-LMW-1S**	EPA 200.8	454179	EPA 200.8	454325
60231804002	**S-LMW-2S**	EPA 200.8	454179	EPA 200.8	454325
60231804003	**S-LMW-3S**	EPA 200.8	454179	EPA 200.8	454325
60231804004	**S-LMW-5S**	EPA 200.8	454179	EPA 200.8	454325
60231804005	**S-LMW-6S**	EPA 200.8	454179	EPA 200.8	454325
60231804006	**S-LMW-7S**	EPA 200.8	454179	EPA 200.8	454325
60231804007	**S-LMW-8S**	EPA 200.8	454179	EPA 200.8	454325
60231804008	**S-BMW-1S**	EPA 200.8	454179	EPA 200.8	454325
60231804009	**S-LMW-DUP-1**	EPA 200.8	454179	EPA 200.8	454325
60231804010	**S-LMW-DUP-2**	EPA 200.8	454179	EPA 200.8	454325
60231804011	**S-LMW-FB-1**	EPA 200.8	454179	EPA 200.8	454325
60232057001	**S-LMW-4S**	EPA 200.8	454621	EPA 200.8	454777
60232057002	**S-LMW-9S**	EPA 200.8	454621	EPA 200.8	454777
60232057003	**S-LMW-FB-2**	EPA 200.8	454621	EPA 200.8	454777
60232580001	**S-BMS-3S**	EPA 200.8	455691	EPA 200.8	455912
60231804001	**S-LMW-1S**	EPA 7470	455411	EPA 7470	455515
60231804002	**S-LMW-2S**	EPA 7470	455411	EPA 7470	455515
60231804003	**S-LMW-3S**	EPA 7470	455411	EPA 7470	455515
60231804004	**S-LMW-5S**	EPA 7470	455411	EPA 7470	455515
60231804005	**S-LMW-6S**	EPA 7470	455411	EPA 7470	455515
60231804006	**S-LMW-7S**	EPA 7470	455411	EPA 7470	455515
60231804007	**S-LMW-8S**	EPA 7470	455411	EPA 7470	455515
60231804008	**S-BMW-1S**	EPA 7470	455411	EPA 7470	455515
60231804009	**S-LMW-DUP-1**	EPA 7470	455411	EPA 7470	455515
60231804010	**S-LMW-DUP-2**	EPA 7470	455411	EPA 7470	455515
60231804011	**S-LMW-FB-1**	EPA 7470	455411	EPA 7470	455515
60232057001	**S-LMW-4S**	EPA 7470	456114	EPA 7470	456252
60232057002	**S-LMW-9S**	EPA 7470	456114	EPA 7470	456252
60232057003	**S-LMW-FB-2**	EPA 7470	456114	EPA 7470	456252
60232580001	**S-BMS-3S**	EPA 7470	456625	EPA 7470	456654

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231804001	S-LMW-1S	EPA 903.1	242484		
60231804002	S-LMW-2S	EPA 903.1	242484		
60231804003	S-LMW-3S	EPA 903.1	242484		
60231804004	S-LMW-5S	EPA 903.1	242484		
60231804005	S-LMW-6S	EPA 903.1	242484		
60231804006	S-LMW-7S	EPA 903.1	242484		
60231804007	S-LMW-8S	EPA 903.1	242484		
60231804008	S-BMW-1S	EPA 903.1	242484		
60231804009	S-LMW-DUP-1	EPA 903.1	242484		
60231804010	S-LMW-DUP-2	EPA 903.1	242484		
60231804011	S-LMW-FB-1	EPA 903.1	242484		
60231804012	S-LMW-1S MS	EPA 903.1	242484		
60231804013	S-LMW-1S MSD	EPA 903.1	242484		
60232057001	S-LMW-4S	EPA 903.1	242588		
60232057002	S-LMW-9S	EPA 903.1	242588		
60232057003	S-LMW-FB-2	EPA 903.1	242588		
60232580001	S-BMS-3S	EPA 903.1	242561		
60231804001	S-LMW-1S	EPA 904.0	242485		
60231804002	S-LMW-2S	EPA 904.0	242485		
60231804003	S-LMW-3S	EPA 904.0	242485		
60231804004	S-LMW-5S	EPA 904.0	242485		
60231804005	S-LMW-6S	EPA 904.0	242485		
60231804006	S-LMW-7S	EPA 904.0	242485		
60231804007	S-LMW-8S	EPA 904.0	242485		
60231804008	S-BMW-1S	EPA 904.0	242485		
60231804009	S-LMW-DUP-1	EPA 904.0	242485		
60231804010	S-LMW-DUP-2	EPA 904.0	242485		
60231804011	S-LMW-FB-1	EPA 904.0	242485		
60231804012	S-LMW-1S MS	EPA 904.0	242485		
60231804013	S-LMW-1S MSD	EPA 904.0	242485		
60232057001	S-LMW-4S	EPA 904.0	242592		
60232057002	S-LMW-9S	EPA 904.0	242592		
60232057003	S-LMW-FB-2	EPA 904.0	242592		
60232580001	S-BMS-3S	EPA 904.0	242562		
60231804001	S-LMW-1S	SM 2540C	454444		
60231804002	S-LMW-2S	SM 2540C	454444		
60231804003	S-LMW-3S	SM 2540C	454444		
60231804004	S-LMW-5S	SM 2540C	454444		
60231804005	S-LMW-6S	SM 2540C	454444		
60231804006	S-LMW-7S	SM 2540C	454444		
60231804007	S-LMW-8S	SM 2540C	454444		
60231804008	S-BMW-1S	SM 2540C	454266		
60231804009	S-LMW-DUP-1	SM 2540C	454444		
60231804010	S-LMW-DUP-2	SM 2540C	454444		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231804011	S-LMW-FB-1	SM 2540C	454444		
60232057001	S-LMW-4S	SM 2540C	455196		
60232057002	S-LMW-9S	SM 2540C	455196		
60232057003	S-LMW-FB-2	SM 2540C	455196		
60232580001	S-BMS-3S	SM 2540C	456308		
60231804001	S-LMW-1S	SM 4500-H+B	454699		
60231804002	S-LMW-2S	SM 4500-H+B	454699		
60231804003	S-LMW-3S	SM 4500-H+B	455737		
60231804004	S-LMW-5S	SM 4500-H+B	454699		
60231804005	S-LMW-6S	SM 4500-H+B	454699		
60231804006	S-LMW-7S	SM 4500-H+B	454699		
60231804007	S-LMW-8S	SM 4500-H+B	454699		
60231804008	S-BMW-1S	SM 4500-H+B	454662		
60231804009	S-LMW-DUP-1	SM 4500-H+B	454663		
60231804010	S-LMW-DUP-2	SM 4500-H+B	454663		
60231804011	S-LMW-FB-1	SM 4500-H+B	454699		
60232057001	S-LMW-4S	SM 4500-H+B	454701		
60232057002	S-LMW-9S	SM 4500-H+B	454701		
60232057003	S-LMW-FB-2	SM 4500-H+B	454701		
60232580001	S-BMS-3S	SM 4500-H+B	457036		
60231804001	S-LMW-1S	EPA 300.0	455675		
60231804001	S-LMW-1S	EPA 300.0	455761		
60231804002	S-LMW-2S	EPA 300.0	455675		
60231804002	S-LMW-2S	EPA 300.0	455761		
60231804003	S-LMW-3S	EPA 300.0	455675		
60231804003	S-LMW-3S	EPA 300.0	455761		
60231804004	S-LMW-5S	EPA 300.0	455675		
60231804004	S-LMW-5S	EPA 300.0	455761		
60231804005	S-LMW-6S	EPA 300.0	455675		
60231804005	S-LMW-6S	EPA 300.0	455761		
60231804006	S-LMW-7S	EPA 300.0	455675		
60231804006	S-LMW-7S	EPA 300.0	455761		
60231804007	S-LMW-8S	EPA 300.0	455675		
60231804007	S-LMW-8S	EPA 300.0	455761		
60231804008	S-BMW-1S	EPA 300.0	455675		
60231804008	S-BMW-1S	EPA 300.0	455761		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60231804

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231804009	**S-LMW-DUP-1**	EPA 300.0	455675		
60231804009	**S-LMW-DUP-1**	EPA 300.0	455761		
60231804010	**S-LMW-DUP-2**	EPA 300.0	455675		
60231804010	**S-LMW-DUP-2**	EPA 300.0	455761		
60231804011	**S-LMW-FB-1**	EPA 300.0	455675		
60232057001	**S-LMW-4S**	EPA 300.0	457500		
60232057001	**S-LMW-4S**	EPA 300.0	457515		
60232057002	**S-LMW-9S**	EPA 300.0	457500		
60232057002	**S-LMW-9S**	EPA 300.0	457515		
60232057003	**S-LMW-FB-2**	EPA 300.0	457500		
60232580001	**S-BMS-3S**	EPA 300.0	458214		
60232580001	**S-BMS-3S**	EPA 300.0	458452		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60231804

60231804

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: (CF +0.7) T-266 / (CF -0.5) T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.4/14.2 **Corr. Factor** (CF +0.7) 0 (CF -0.5) **Corrected** 2.1/14.9/15.3

Temperature should be above freezing to 6°C 14/6

Date and initials of person examining contents: PVH pv 11/9/16

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	pH
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	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 Check 11/9/16

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

Section C — Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: MO

Section D — Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N						
																		Analysis Test											60231804
1	S-LMW-1S	WT	G			11/3/16	1025		12	3		9							3	3	3	3	6	3BP3N	3BP2U	0BP1N		01
2	S-LMW-2S	WT	G				1134		4	1		3							1	1	1	1	2					1BP3N 1BP2U 2BP1N 02
3	S-LMW-3S	WT	G				1520		1	1		1							1	1	1	1	2					03
4	~~S-LMW-4S~~	~~WT~~	G																									-
5	S-LMW-5S	WT	G			11/3/16	1340		4	1		3							1	1	1	1	4					04
6	S-LMW-6S	WT	G				1245		1	1		1							1	1	1	1	2					05
7	S-LMW-7S	WT	G				1353		1	1		1							1	1	1	1	2					06
8	S-LMW-8S	WT	G				1403		1	1		1							1	1	1	1	2					07
9	~~S-LMW-9S~~	~~WT~~	G																									-
10	S-BMW-1S	WT	G			11/7/16	0905		4	1		3																	08
11	~~S-BMW-2S~~	~~WT~~	G			~~11/3/16~~																						-
12	S-LMW-DUP-1	WT	G			11/3/16	—		1	1		1																	09

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	11/3/16	1700	PACE	11/8/16	1700
	PACE	11/8/16	1700		11/9/16	0420

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	2.1	X	X	X
	14.9	N		
	15.3			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingr

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/8/16

*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
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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 636-724-9191	Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - Fly Ash	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B	Pace Profile #:	9285

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER

UST RCRA OTHER _____

Site Location STATE: MO

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	N	N		60231804
1	S-LMW-DUP-2	WT	G			11/3/16	—		4	1		3							2	1	1	1	2		1BP3N 2-0 1BP2N 2BP1N 010
2	S-LMW-FB-1	WT	G			11/6/16	1500		4	1		3							2	1	1	1	2		011
3	S-LMW-FB-2	WT	G																						
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	[signature] (GOLDER)	11/3/16	1700	[signature] PACE	11/8/16	1700
	[signature] PACE	11/8/16	1100	[signature] PACE	11/9/16	0920

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
2.1	Y	Y	Y
1.9	N	Y	Y
1.5.3			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/8/16

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60232057

60232057

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: (CF +0.7) T-266 / (CF -0.5) T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.2/15.6 **Corr. Factor** CF +0.7 / CF -0.5 **Corrected** 1.9/16.3

Date and initials of person examining contents: P 11/11/16

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	pH
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	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 Cheek Date: 11/11/16

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical www.pacelabs.com

Page: 1 of 1

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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): Metals* N, Chloride/Fluoride/Sulfate N, TDS N, pH N, Radium 226 & 228 N

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./Lab I.D. 60232057
1	S-LMW-4S	WT	G			11/9/16	1420		4	1		3						1	1	1	1	2		18PSN 2-0 18P2U 18PIN 01
2	S-LMW-9S	WT	G			↓	1510		4	1		3						↓	↓	↓	↓	↓		↓ ↓ ↓ 02
3	S-LMW-FB-2	WT	G			↓	1503		4	1		3						↓	↓	↓	↓	↓		↓ ↓ ↓ 03
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	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	[signature] (Golder)	11/10/16	1202	[signature] PASI	11/11/16	0400	1.9	Y	X	Y
							16.3	N	X	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JCH Ingram

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 11/10/16

*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
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60232580

60232580

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-266 (CF +0.7) / T-239 (CF -0.5) **Type of Ice:** Wet ☑ Blue None

Cooler Temperature (°C): As-read 1.5/1.6 **Corr. Factor** CF +0.7 / CF -0.5 **Corrected** 2.2/2.3

Temperature should be above freezing to 6°C

Date and initials of person examining contents: PV 11/18/16

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	pH
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	
Cyanide water sample checks: ☐ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☑Yes ☐No ☐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: _____

Jann Check 11/11/16

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: 2 of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	636-724-9191 Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - ~~CCR~~ Fly Ash	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B	Pace Profile #:	9285

REGULATORY AGENCY

NPDES (X) GROUND WATER DRINKING WATER

UST RCRA OTHER _____

Site Location STATE: MO

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; OT; TS	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	Y/N	Analysis Test: Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-BMW-3S		WT	G			11/17/16	1250		4	1		3						N	1	1	1	1	2		602325B0
2			WT	G															N							
3			WT	G															N							
4			WT	G															N							
5			WT	G															N							
6			WT	G															N							
7			WT	G															N							
8			WT	G															N							
9			WT	G															N							
10			WT	G															N							
11			WT	G															N							
12			WT	G															N							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Swoszi/Golder	11/17/16	1500		11/17/16	1500				
		11/17/16	1700		11/16/16	0335	2-2	X	Y	Y
							16-3	N	X	Y

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	John Swoszi
SIGNATURE of SAMPLER:	
DATE Signed (MM/DD/YY):	11/17/16

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

January 12, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on December 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60233959001	**S-BMW-3S**	Water	12/08/16 10:30	12/09/16 04:40

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60233959001	**S-BMW-3S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	JLW	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Sample: S-BMW-3S **Lab ID: 60233959001** Collected: 12/08/16 10:30 Received: 12/09/16 04:40 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								
Barium	**198**	ug/L	5.0	0.58	1	12/13/16 15:05	12/15/16 14:58	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	12/13/16 15:05	12/15/16 14:58	7440-41-7	
Boron	**70.6J**	ug/L	100	50.0	1	12/13/16 15:05	12/15/16 14:58	7440-42-8	
Calcium	**128000**	ug/L	100	8.1	1	12/13/16 15:05	12/15/16 14:58	7440-70-2	
Cobalt	**1.8J**	ug/L	5.0	0.72	1	12/13/16 15:05	12/15/16 14:58	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	12/13/16 15:05	12/15/16 14:58	7439-92-1	
Lithium	**7.3J**	ug/L	10.0	4.9	1	12/13/16 15:05	12/15/16 14:58	7439-93-2	
Molybdenum	**9.3J**	ug/L	20.0	0.52	1	12/13/16 15:05	12/15/16 14:58	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	12/13/16 10:50	12/14/16 12:33	7440-36-0	
Arsenic	**1.4**	ug/L	1.0	0.10	1	12/13/16 10:50	12/14/16 12:33	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	12/13/16 10:50	12/14/16 12:33	7440-43-9	
Chromium	**0.57J**	ug/L	1.0	0.34	1	12/13/16 10:50	12/14/16 12:33	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	12/13/16 10:50	12/14/16 12:33	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	12/13/16 10:50	12/14/16 12:33	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.039**	ug/L	0.20	0.039	1	12/13/16 14:15	12/14/16 10:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**447**	mg/L	5.0	5.0	1		12/13/16 16:46		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		12/19/16 08:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**12.0**	mg/L	1.0	0.50	1		12/22/16 01:05	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.027	1		12/22/16 01:05	16984-48-8	
Sulfate	**32.2**	mg/L	2.0	0.31	2		12/22/16 11:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 458785
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Associated Lab Samples: 60233959001

METHOD BLANK: 1878151 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.039	0.20	0.039	12/14/16 09:58	

LABORATORY CONTROL SAMPLE: 1878152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1878153 1878154

Parameter	Units	60233685001 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	4.6	4.9	92	98	75-125	6	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 458773
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60233959001

METHOD BLANK: 1878108 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	1.8J	5.0	0.58	12/15/16 14:00	
Beryllium	ug/L	<0.26	1.0	0.26	12/15/16 14:00	
Boron	ug/L	<50.0	100	50.0	12/15/16 14:00	
Calcium	ug/L	<8.1	100	8.1	12/15/16 14:00	
Cobalt	ug/L	<0.72	5.0	0.72	12/15/16 14:00	
Lead	ug/L	<2.5	5.0	2.5	12/15/16 14:00	
Lithium	ug/L	<4.9	10.0	4.9	12/15/16 14:00	
Molybdenum	ug/L	<0.52	20.0	0.52	12/15/16 14:00	

LABORATORY CONTROL SAMPLE: 1878109

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1070	107	85-115	
Beryllium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	1000	100	85-115	
Calcium	ug/L	10000	9910	99	85-115	
Cobalt	ug/L	1000	1070	107	85-115	
Lead	ug/L	1000	1060	106	85-115	
Lithium	ug/L	1000	1080	108	85-115	
Molybdenum	ug/L	1000	1090	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1878110 1878111

Parameter	Units	60234024001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	19.7	1000	1000	1080	1080	107	106	70-130	0	20	
Beryllium	ug/L	ND	1000	1000	1000	999	100	100	70-130	0	20	
Boron	ug/L	ND	1000	1000	1030	1020	102	102	70-130	0	20	
Calcium	ug/L	223000	10000	10000	230000	232000	65	83	70-130	1	20	M1
Cobalt	ug/L	ND	1000	1000	1030	1030	103	103	70-130	0	20	
Lead	ug/L	ND	1000	1000	1010	1010	101	101	70-130	0	20	
Lithium	ug/L	25.7	1000	1000	1120	1110	110	109	70-130	1	20	
Molybdenum	ug/L	ND	1000	1000	1100	1100	108	108	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

MATRIX SPIKE SAMPLE: 1878112

Parameter	Units	60233958001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	667	1000	1710	105	70-130	
Beryllium	ug/L	<0.26	1000	997	100	70-130	
Boron	ug/L	53.1J	1000	1050	100	70-130	
Calcium	ug/L	103000	10000	112000	85	70-130	
Cobalt	ug/L	<0.72	1000	1010	101	70-130	
Lead	ug/L	<2.5	1000	991	99	70-130	
Lithium	ug/L	20.6	1000	1080	106	70-130	
Molybdenum	ug/L	1.8J	1000	1050	105	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 458723 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60233959001

METHOD BLANK: 1877907 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.058	1.0	0.058	12/14/16 11:37	
Arsenic	ug/L	<0.10	1.0	0.10	12/14/16 11:37	
Cadmium	ug/L	<0.029	0.50	0.029	12/14/16 11:37	
Chromium	ug/L	<0.34	1.0	0.34	12/14/16 11:37	
Selenium	ug/L	<0.18	1.0	0.18	12/14/16 11:37	
Thallium	ug/L	<0.50	1.0	0.50	12/14/16 11:37	

LABORATORY CONTROL SAMPLE: 1877908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.4	98	85-115	
Arsenic	ug/L	40	39.5	99	85-115	
Cadmium	ug/L	40	40.0	100	85-115	
Chromium	ug/L	40	41.0	103	85-115	
Selenium	ug/L	40	38.8	97	85-115	
Thallium	ug/L	40	40.5	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1877909 1877910

Parameter	Units	7555053001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	1.0	40	40	40.1	41.1	98	100	70-130	2	20	
Arsenic	ug/L	0.0039 mg/L	40	40	45.0	46.2	103	106	70-130	3	20	
Cadmium	ug/L	ND	40	40	37.2	38.0	93	95	70-130	2	20	
Chromium	ug/L	0.0026 mg/L	40	40	41.0	41.7	96	98	70-130	2	20	
Selenium	ug/L	ND	40	40	39.0	39.6	96	98	70-130	2	20	
Thallium	ug/L	ND	40	40	40.1	41.0	100	102	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 458809 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60233959001

METHOD BLANK: 1878246 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	12/13/16 16:40	

LABORATORY CONTROL SAMPLE: 1878247

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	921	92	80-120	

SAMPLE DUPLICATE: 1878248

Parameter	Units	60233763001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	411	424	3	10	

SAMPLE DUPLICATE: 1878249

Parameter	Units	60233959001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	447	448	0	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 459374
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60233959001

SAMPLE DUPLICATE: 1880971

Parameter	Units	60233789001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 459810 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60233959001

METHOD BLANK: 1882488 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/21/16 22:31	
Fluoride	mg/L	<0.027	0.20	0.027	12/21/16 22:31	

LABORATORY CONTROL SAMPLE: 1882489

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1882490 1882491

Parameter	Units	60233958001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	10.8	5	5	16.4	16.5	111	114	80-120	1	15	
Fluoride	mg/L	0.34	2.5	2.5	2.7	2.8	96	97	80-120	1	15	

MATRIX SPIKE SAMPLE: 1882492

Parameter	Units	60233959001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.0	5	17.7	113	80-120	
Fluoride	mg/L	0.33	2.5	2.7	95	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 459964
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60233959001

METHOD BLANK: 1883030 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.15	1.0	0.15	12/22/16 10:24	

LABORATORY CONTROL SAMPLE: 1883031

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1883032 1883033

Parameter	Units	60233958001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	36.8	10	10	47.3	47.3	105	105	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Sample: S-BMW-3S **Lab ID: 60233959001** Collected: 12/08/16 10:30 Received: 12/09/16 04:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0623 ± 0.285 (0.579) C:NA T:92%**	pCi/L	01/11/17 11:18	13982-63-3	
Radium-228	EPA 904.0	**0.680 ± 0.544 (1.08) C:72% T:87%**	pCi/L	01/11/17 15:06	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 245313 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60233959001

METHOD BLANK: 1207357 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.119 ± 0.379 (0.855) C:66% T:74%	pCi/L	01/10/17 12:05	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

QC Batch: 245312 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60233959001

METHOD BLANK: 1207356 Matrix: Water
Associated Lab Samples: 60233959001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.167 ± 0.462 (0.783) C:NA T:91%	pCi/L	01/09/17 15:07	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60233959

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60233959001	**S-BMW-3S**	EPA 200.7	458773	EPA 200.7	458836
60233959001	**S-BMW-3S**	EPA 200.8	458723	EPA 200.8	458750
60233959001	**S-BMW-3S**	EPA 7470	458785	EPA 7470	458813
60233959001	**S-BMW-3S**	EPA 903.1	245312		
60233959001	**S-BMW-3S**	EPA 904.0	245313		
60233959001	**S-BMW-3S**	SM 2540C	458809		
60233959001	**S-BMW-3S**	SM 4500-H+B	459374		
60233959001	**S-BMW-3S**	EPA 300.0	459810		
60233959001	**S-BMW-3S**	EPA 300.0	459964		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60233959

60233959

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: (CF +0.7) T-266 / (CF -0.5) T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 0.6/11.8 **Corr. Factor** CF +0.7 CF -0.5 **Corrected** 1.3/12.5

Date and initials of person examining contents: pv 12/9/16

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	pH
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	
Cyanide water sample checks: ☑ N/A 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: Jann Chek 12/9/16 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: of

Section A — **Required** Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St. Charles, MO 63301
Email To:	mhaddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	

Section B — **Required** Project Information:

Report To:	Mark Haddock
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
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

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N		60233959
1	SBMW-35					12/5/16	1230		4	1		3							1	1	1	1	2		1BP3N 2-0 1BP2U 2BP1N 0
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	JGH Ingram (Golder)	12/3/16	1230	PACE	12/8/16	1230
	PACE	12/6/16	1700		12/9/16	0440
					pm 12/9/16	

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1-3	Y	Y	Y
12-8	N	Y	Y
12-5			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JGH Ingram

SIGNATURE of SAMPLER: JGH

DATE Signed (MM/DD/YY): 12/03/16

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

January 31, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory between January 05, 2017 and January 07, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Richard Mannz for
Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60235474001	**S-LMW-2S**	Water	01/04/17 14:58	01/05/17 05:45
60235474002	**S-LMW-5S**	Water	01/04/17 09:22	01/05/17 05:45
60235474003	**S-LMW-6S**	Water	01/04/17 10:57	01/05/17 05:45
60235474004	**S-LMW-7S**	Water	01/04/17 11:42	01/05/17 05:45
60235474005	**S-LMW-8S**	Water	01/04/17 12:52	01/05/17 05:45
60235474006	**S-LMW-9S**	Water	01/04/17 14:09	01/05/17 05:45
60235474007	**S-BMW-1S**	Water	01/04/17 12:35	01/05/17 05:45
60235474008	**S-BMW-3S**	Water	01/04/17 15:20	01/05/17 05:45
60235474009	**S-LMW-DUP-1**	Water	01/04/17 08:00	01/05/17 05:45
60235474010	**S-LMW-DUP-2**	Water	01/04/17 08:00	01/05/17 05:45
60235474011	**S-LMW-FB-1**	Water	01/04/17 10:40	01/05/17 05:45
60235474012	**S-LMW-FB-2**	Water	01/04/17 14:55	01/05/17 05:45
60235627001	**S-LMW-3S**	Water	01/05/17 16:20	01/07/17 03:40
60235627002	**S-LMW-4S**	Water	01/05/17 16:41	01/07/17 03:40
60235627003	**S-LMW-1S**	Water	01/05/17 09:25	01/07/17 03:40
60235474016	**S-LMW-1S MS**	Water	01/05/17 09:25	01/07/17 03:40
60235474017	**S-LMW-1S MSD**	Water	01/05/17 09:25	01/07/17 03:40

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60235474001	**S-LMW-2S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474002	**S-LMW-5S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474003	**S-LMW-6S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474004	**S-LMW-7S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474005	**S-LMW-8S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474006	**S-LMW-9S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474007	**S-BMW-1S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474008	**S-BMW-3S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474009	**S-LMW-DUP-1**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474010	**S-LMW-DUP-2**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474011	**S-LMW-FB-1**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474012	**S-LMW-FB-2**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235627001	**S-LMW-3S**	EPA 200.7	JGP	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235627002	**S-LMW-4S**	EPA 200.7	JGP	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	OL	3	PASI-K
60235627003	**S-LMW-1S**	EPA 200.7	JGP	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60235474016	**S-LMW-1S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60235474017	**S-LMW-1S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-2S **Lab ID: 60235474001** Collected: 01/04/17 14:58 Received: 01/05/17 05:45 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								
Barium	**165**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:40	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:40	7440-41-7	
Boron	**8860**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:40	7440-42-8	
Calcium	**248000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:40	7440-70-2	
Cobalt	**5.9**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:40	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:40	7439-92-1	
Lithium	**39.4**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:40	7439-93-2	
Molybdenum	**861**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:40	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.18J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 14:36	7440-36-0	
Arsenic	**0.82J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 14:36	7440-38-2	
Cadmium	**0.39J**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 14:36	7440-43-9	
Chromium	**0.46J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 14:36	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 14:36	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 14:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 13:52	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1100**	mg/L	5.0	5.0	1		01/06/17 10:47		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		01/11/17 11:51		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**216**	mg/L	20.0	10.0	20		01/17/17 16:51	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.027	1		01/15/17 17:38	16984-48-8	
Sulfate	**218**	mg/L	20.0	3.1	20		01/17/17 16:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-5S **Lab ID: 60235474002** Collected: 01/04/17 09:22 Received: 01/05/17 05:45 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								
Barium	**66.8**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:42	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:42	7440-41-7	
Boron	**10800**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:42	7440-42-8	
Calcium	**257000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:42	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:42	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:42	7439-92-1	
Lithium	**57.4**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:42	7439-93-2	
Molybdenum	**668**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:42	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.13J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 14:40	7440-36-0	
Arsenic	**0.23J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 14:40	7440-38-2	
Cadmium	**0.73**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 14:40	7440-43-9	
Chromium	**0.63J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 14:40	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 14:40	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 14:40	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.071J**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 13:54	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1390**	mg/L	5.0	5.0	1		01/06/17 10:48		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		01/11/17 11:52		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**28.5**	mg/L	2.0	1.0	2		01/17/17 17:05	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.027	1		01/15/17 18:19	16984-48-8	
Sulfate	**749**	mg/L	50.0	7.7	50		01/17/17 17:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-6S **Lab ID: 60235474003** Collected: 01/04/17 10:57 Received: 01/05/17 05:45 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								
Barium	**46.9**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:44	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:44	7440-41-7	
Boron	**15600**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:44	7440-42-8	
Calcium	**300000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:44	7440-70-2	
Cobalt	**8.0**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:44	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:44	7439-92-1	
Lithium	**26.4**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:44	7439-93-2	
Molybdenum	**1.5J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:44	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 14:44	7440-36-0	
Arsenic	**0.35J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 14:44	7440-38-2	
Cadmium	**0.55**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 14:44	7440-43-9	
Chromium	**0.76J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 14:44	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 14:44	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 14:44	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 13:55	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1650**	mg/L	5.0	5.0	1		01/06/17 10:49		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		01/11/17 11:53		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.4**	mg/L	1.0	0.50	1		01/15/17 18:33	16887-00-6	
Fluoride	**0.12J**	mg/L	0.20	0.027	1		01/15/17 18:33	16984-48-8	
Sulfate	**856**	mg/L	100	15.4	100		01/17/17 17:33	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-7S **Lab ID: 60235474004** Collected: 01/04/17 11:42 Received: 01/05/17 05:45 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								
Barium	**136**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:47	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:47	7440-41-7	
Boron	**2580**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:47	7440-42-8	
Calcium	**246000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:47	7440-70-2	
Cobalt	**3.7J**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:47	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:47	7439-92-1	
Lithium	**26.8**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:47	7439-93-2	
Molybdenum	**2.5J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:47	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 14:48	7440-36-0	
Arsenic	**0.14J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 14:48	7440-38-2	
Cadmium	**0.30J**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 14:48	7440-43-9	B
Chromium	**0.46J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 14:48	7440-47-3	
Selenium	**2.5**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 14:48	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 14:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:04	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1070**	mg/L	5.0	5.0	1		01/06/17 10:50		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		01/11/17 11:54		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.7**	mg/L	1.0	0.50	1		01/15/17 18:47	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.027	1		01/15/17 18:47	16984-48-8	
Sulfate	**371**	mg/L	50.0	7.7	50		01/17/17 18:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-8S **Lab ID: 60235474005** Collected: 01/04/17 12:52 Received: 01/05/17 05:45 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								
Barium	**107**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:49	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:49	7440-41-7	
Boron	**6060**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:49	7440-42-8	
Calcium	**164000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:49	7440-70-2	
Cobalt	**6.6**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:49	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:49	7439-92-1	
Lithium	**23.1**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:49	7439-93-2	
Molybdenum	**169**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:49	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.28J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 14:53	7440-36-0	
Arsenic	**0.63J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 14:53	7440-38-2	
Cadmium	**0.59**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 14:53	7440-43-9	
Chromium	**0.63J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 14:53	7440-47-3	
Selenium	**0.22J**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 14:53	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 14:53	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**773**	mg/L	5.0	5.0	1		01/06/17 10:51		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		01/11/17 11:56		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**43.5**	mg/L	5.0	2.5	5		01/17/17 18:29	16887-00-6	
Fluoride	**1.0**	mg/L	0.20	0.027	1		01/15/17 19:01	16984-48-8	
Sulfate	**402**	mg/L	50.0	7.7	50		01/17/17 18:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-9S **Lab ID: 60235474006** Collected: 01/04/17 14:09 Received: 01/05/17 05:45 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								
Barium	**79.2**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:56	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:56	7440-41-7	
Boron	**1510**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:56	7440-42-8	
Calcium	**235000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:56	7440-70-2	
Cobalt	**9.4**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:56	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:56	7439-92-1	
Lithium	**54.0**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:56	7439-93-2	
Molybdenum	**6.8J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:56	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:06	7440-36-0	
Arsenic	**1.6**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:06	7440-38-2	
Cadmium	**0.10J**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:06	7440-43-9	B
Chromium	**0.66J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:06	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:06	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:06	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.065J**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:07	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1090**	mg/L	5.0	5.0	1		01/06/17 10:53		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		01/11/17 11:57		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**73.4**	mg/L	5.0	2.5	5		01/17/17 19:24	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.027	1		01/15/17 19:15	16984-48-8	
Sulfate	**286**	mg/L	20.0	3.1	20		01/17/17 19:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-BMW-1S **Lab ID: 60235474007** Collected: 01/04/17 12:35 Received: 01/05/17 05:45 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								
Barium	**152**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 15:58	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 15:58	7440-41-7	
Boron	**82.2J**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 15:58	7440-42-8	
Calcium	**158000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 15:58	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 15:58	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 15:58	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 15:58	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 15:58	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.084J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:10	7440-36-0	
Arsenic	**0.71J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:10	7440-38-2	
Cadmium	**0.099J**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:10	7440-43-9	B
Chromium	**0.57J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:10	7440-47-3	
Selenium	**0.30J**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:10	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:10	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**533**	mg/L	5.0	5.0	1		01/06/17 10:54		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		01/11/17 12:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.6**	mg/L	1.0	0.50	1		01/15/17 19:29	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.027	1		01/15/17 19:29	16984-48-8	
Sulfate	**26.5**	mg/L	2.0	0.31	2		01/17/17 19:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-BMW-3S **Lab ID: 60235474008** Collected: 01/04/17 15:20 Received: 01/05/17 05:45 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								
Barium	**675**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 16:00	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 16:00	7440-41-7	
Boron	**62.3J**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 16:00	7440-42-8	
Calcium	**110000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 16:00	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 16:00	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 16:00	7439-92-1	
Lithium	**23.8**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 16:00	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 16:00	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:14	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:14	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:14	7440-43-9	
Chromium	**0.51J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:14	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:14	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:14	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:10	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**419**	mg/L	5.0	5.0	1		01/06/17 10:55		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		01/11/17 12:02		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.7**	mg/L	1.0	0.50	1		01/15/17 20:25	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	0.027	1		01/15/17 20:25	16984-48-8	
Sulfate	**24.7**	mg/L	2.0	0.31	2		01/17/17 20:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-DUP-1 **Lab ID: 60235474009** Collected: 01/04/17 08:00 Received: 01/05/17 05:45 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								
Barium	**64.6**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 16:03	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 16:03	7440-41-7	
Boron	**10400**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 16:03	7440-42-8	
Calcium	**254000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 16:03	7440-70-2	
Cobalt	**0.97J**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 16:03	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 16:03	7439-92-1	
Lithium	**56.4**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 16:03	7439-93-2	
Molybdenum	**644**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 16:03	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.11J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:19	7440-36-0	
Arsenic	**0.18J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:19	7440-38-2	
Cadmium	**0.52**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:19	7440-43-9	
Chromium	**0.51J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:19	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:19	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:19	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:11	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1360**	mg/L	5.0	5.0	1		01/09/17 11:35		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		01/11/17 12:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**28.8**	mg/L	2.0	1.0	2		01/17/17 20:20	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.027	1		01/15/17 20:38	16984-48-8	
Sulfate	**721**	mg/L	50.0	7.7	50		01/17/17 20:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-DUP-2 **Lab ID: 60235474010** Collected: 01/04/17 08:00 Received: 01/05/17 05:45 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								
Barium	**133**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 16:09	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 16:09	7440-41-7	
Boron	**2480**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 16:09	7440-42-8	
Calcium	**240000**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 16:09	7440-70-2	M1
Cobalt	**3.3J**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 16:09	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 16:09	7439-92-1	
Lithium	**26.9**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 16:09	7439-93-2	
Molybdenum	**2.3J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 16:09	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.10J**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:41	7440-36-0	
Arsenic	**0.12J**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:41	7440-38-2	
Cadmium	**0.29J**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:41	7440-43-9	
Chromium	**0.48J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:41	7440-47-3	
Selenium	**2.4**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:41	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:41	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:12	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1060**	mg/L	5.0	5.0	1		01/06/17 10:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		01/11/17 12:06		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**19.5**	mg/L	1.0	0.50	1		01/15/17 20:52	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.027	1		01/15/17 20:52	16984-48-8	
Sulfate	**372**	mg/L	50.0	7.7	50		01/17/17 20:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-FB-1 **Lab ID: 60235474011** Collected: 01/04/17 10:40 Received: 01/05/17 05:45 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								
Barium	**<0.58**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 16:16	7440-39-3	
Beryllium	**0.28J**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 16:16	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 16:16	7440-42-8	
Calcium	**44.7J**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 16:16	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 16:16	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 16:16	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 16:16	7439-93-2	
Molybdenum	**0.73J**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 16:16	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:45	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:45	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:45	7440-43-9	
Chromium	**0.66J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:45	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:45	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:45	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:14	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		01/06/17 10:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		01/11/17 12:08		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		01/15/17 21:06	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		01/15/17 21:06	16984-48-8	
Sulfate	**<0.15**	mg/L	1.0	0.15	1		01/15/17 21:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-FB-2 **Lab ID: 60235474012** Collected: 01/04/17 14:55 Received: 01/05/17 05:45 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								
Barium	**<0.58**	ug/L	5.0	0.58	1	01/06/17 10:00	01/06/17 16:23	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/06/17 10:00	01/06/17 16:23	7440-41-7	
Boron	**<50.0**	ug/L	100	50.0	1	01/06/17 10:00	01/06/17 16:23	7440-42-8	
Calcium	**20.0J**	ug/L	100	8.1	1	01/06/17 10:00	01/06/17 16:23	7440-70-2	B
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/06/17 10:00	01/06/17 16:23	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/06/17 10:00	01/06/17 16:23	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	01/06/17 10:00	01/06/17 16:23	7439-93-2	
Molybdenum	**<0.52**	ug/L	20.0	0.52	1	01/06/17 10:00	01/06/17 16:23	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.058**	ug/L	1.0	0.058	1	01/06/17 10:00	01/11/17 15:58	7440-36-0	
Arsenic	**<0.10**	ug/L	1.0	0.10	1	01/06/17 10:00	01/11/17 15:58	7440-38-2	
Cadmium	**<0.029**	ug/L	0.50	0.029	1	01/06/17 10:00	01/11/17 15:58	7440-43-9	
Chromium	**0.74J**	ug/L	1.0	0.34	1	01/06/17 10:00	01/11/17 15:58	7440-47-3	
Selenium	**<0.18**	ug/L	1.0	0.18	1	01/06/17 10:00	01/11/17 15:58	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/06/17 10:00	01/11/17 15:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		01/06/17 10:58		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.8**	Std. Units	0.10	0.10	1		01/11/17 12:10		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		01/15/17 21:20	16887-00-6	
Fluoride	**<0.027**	mg/L	0.20	0.027	1		01/15/17 21:20	16984-48-8	
Sulfate	**<0.15**	mg/L	1.0	0.15	1		01/15/17 21:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-3S **Lab ID: 60235627001** Collected: 01/05/17 16:20 Received: 01/07/17 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								
Barium	**144**	ug/L	5.0	0.58	1	01/11/17 09:35	01/11/17 16:18	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/11/17 09:35	01/11/17 16:18	7440-41-7	
Boron	**237**	ug/L	100	50.0	1	01/11/17 09:35	01/11/17 16:18	7440-42-8	
Calcium	**131000**	ug/L	100	8.1	1	01/11/17 09:35	01/11/17 16:18	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/11/17 09:35	01/11/17 16:18	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	01/11/17 09:35	01/11/17 16:18	7439-92-1	
Lithium	**19.5**	ug/L	10.0	4.9	1	01/11/17 09:35	01/11/17 16:18	7439-93-2	
Molybdenum	**0.65J**	ug/L	20.0	0.52	1	01/11/17 09:35	01/11/17 16:18	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.11J**	ug/L	1.0	0.058	1	01/11/17 13:50	01/12/17 10:44	7440-36-0	
Arsenic	**0.24J**	ug/L	1.0	0.10	1	01/11/17 13:50	01/12/17 10:44	7440-38-2	
Cadmium	**0.054J**	ug/L	0.50	0.029	1	01/11/17 13:50	01/12/17 10:44	7440-43-9	
Chromium	**0.92J**	ug/L	1.0	0.34	1	01/11/17 13:50	01/12/17 10:44	7440-47-3	
Selenium	**2.1**	ug/L	1.0	0.18	1	01/11/17 13:50	01/12/17 10:44	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/11/17 13:50	01/12/17 10:44	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 14:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**516**	mg/L	5.0	5.0	1		01/09/17 16:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		01/17/17 14:15		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**22.7**	mg/L	2.0	1.0	2		01/17/17 21:02	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.027	1		01/15/17 21:34	16984-48-8	
Sulfate	**37.3**	mg/L	2.0	0.31	2		01/17/17 21:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-4S **Lab ID: 60235627002** Collected: 01/05/17 16:41 Received: 01/07/17 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								
Barium	**209**	ug/L	5.0	0.58	1	01/11/17 09:35	01/11/17 16:22	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/11/17 09:35	01/11/17 16:22	7440-41-7	
Boron	**178**	ug/L	100	50.0	1	01/11/17 09:35	01/11/17 16:22	7440-42-8	
Calcium	**125000**	ug/L	100	8.1	1	01/11/17 09:35	01/11/17 16:22	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/11/17 09:35	01/11/17 16:22	7440-48-4	
Lead	**3.1J**	ug/L	5.0	2.5	1	01/11/17 09:35	01/11/17 16:22	7439-92-1	
Lithium	**21.2**	ug/L	10.0	4.9	1	01/11/17 09:35	01/11/17 16:22	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	0.52	1	01/11/17 09:35	01/11/17 16:22	7439-98-7	B
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.20J**	ug/L	1.0	0.058	1	01/11/17 13:50	01/12/17 10:48	7440-36-0	
Arsenic	**0.50J**	ug/L	1.0	0.10	1	01/11/17 13:50	01/12/17 10:48	7440-38-2	
Cadmium	**0.059J**	ug/L	0.50	0.029	1	01/11/17 13:50	01/12/17 10:48	7440-43-9	
Chromium	**1.1**	ug/L	1.0	0.34	1	01/11/17 13:50	01/12/17 10:48	7440-47-3	
Selenium	**5.0**	ug/L	1.0	0.18	1	01/11/17 13:50	01/12/17 10:48	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/11/17 13:50	01/12/17 10:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 15:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**527**	mg/L	5.0	5.0	1		01/09/17 16:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.5**	Std. Units	0.10	0.10	1		01/17/17 14:17		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.0**	mg/L	1.0	0.50	1		01/15/17 21:48	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.027	1		01/15/17 21:48	16984-48-8	
Sulfate	**29.8**	mg/L	2.0	0.31	2		01/17/17 21:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-1S **Lab ID: 60235627003** Collected: 01/05/17 09:25 Received: 01/07/17 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								
Barium	**77.5**	ug/L	5.0	0.58	1	01/11/17 09:35	01/11/17 16:26	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	01/11/17 09:35	01/11/17 16:26	7440-41-7	
Boron	**564**	ug/L	100	50.0	1	01/11/17 09:35	01/11/17 16:26	7440-42-8	
Calcium	**67200**	ug/L	100	8.1	1	01/11/17 09:35	01/11/17 16:26	7440-70-2	
Cobalt	**<0.72**	ug/L	5.0	0.72	1	01/11/17 09:35	01/11/17 16:26	7440-48-4	
Lead	**2.7J**	ug/L	5.0	2.5	1	01/11/17 09:35	01/11/17 16:26	7439-92-1	
Lithium	**14.5**	ug/L	10.0	4.9	1	01/11/17 09:35	01/11/17 16:26	7439-93-2	
Molybdenum	**84.8**	ug/L	20.0	0.52	1	01/11/17 09:35	01/11/17 16:26	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.34J**	ug/L	1.0	0.058	1	01/11/17 13:50	01/12/17 10:51	7440-36-0	
Arsenic	**1.7**	ug/L	1.0	0.10	1	01/11/17 13:50	01/12/17 10:51	7440-38-2	
Cadmium	**0.084J**	ug/L	0.50	0.029	1	01/11/17 13:50	01/12/17 10:51	7440-43-9	
Chromium	**0.46J**	ug/L	1.0	0.34	1	01/11/17 13:50	01/12/17 10:51	7440-47-3	
Selenium	**1.0**	ug/L	1.0	0.18	1	01/11/17 13:50	01/12/17 10:51	7782-49-2	
Thallium	**<0.50**	ug/L	1.0	0.50	1	01/11/17 13:50	01/12/17 10:51	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.055**	ug/L	0.20	0.055	1	01/12/17 09:55	01/12/17 15:29	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**367**	mg/L	5.0	5.0	1		01/09/17 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		01/17/17 14:23		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**20.5**	mg/L	2.0	1.0	2		01/17/17 22:11	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	0.027	1		01/15/17 22:02	16984-48-8	
Sulfate	**77.6**	mg/L	5.0	0.77	5		01/17/17 22:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461806 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235627001, 60235627002, 60235627003

METHOD BLANK: 1890258 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.055	0.20	0.055	01/12/17 13:27	

LABORATORY CONTROL SAMPLE: 1890259

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1890260 1890261

Parameter	Units	60235627003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.055	5	5	5.5	5.4	110	108	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461335 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009

METHOD BLANK: 1888310 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	01/09/17 11:37	
Beryllium	ug/L	<0.26	1.0	0.26	01/09/17 11:37	
Boron	ug/L	<50.0	100	50.0	01/09/17 11:37	
Calcium	ug/L	24.6J	100	8.1	01/09/17 11:37	
Cobalt	ug/L	<0.72	5.0	0.72	01/09/17 11:37	
Lead	ug/L	2.9J	5.0	2.5	01/09/17 11:37	
Lithium	ug/L	<4.9	10.0	4.9	01/09/17 11:37	
Molybdenum	ug/L	<0.52	20.0	0.52	01/09/17 11:37	

LABORATORY CONTROL SAMPLE: 1888311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	998	100	85-115	
Beryllium	ug/L	1000	1000	100	85-115	
Boron	ug/L	1000	930	93	85-115	
Calcium	ug/L	10000	9940	99	85-115	
Cobalt	ug/L	1000	1010	101	85-115	
Lead	ug/L	1000	997	100	85-115	
Lithium	ug/L	1000	1030	103	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888312 1888313

Parameter	Units	60235457003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	258	1000	1000	1260	1270	101	101	70-130	0	20	
Beryllium	ug/L	<0.26	1000	1000	997	992	100	99	70-130	1	20	
Boron	ug/L	76.1J	1000	1000	1030	1010	95	94	70-130	1	20	
Calcium	ug/L	124000	10000	10000	138000	139000	142	147	70-130	0	20	M1
Cobalt	ug/L	2.2J	1000	1000	979	971	98	97	70-130	1	20	
Lead	ug/L	4.2J	1000	1000	967	960	96	96	70-130	1	20	
Lithium	ug/L	32.1	1000	1000	1080	1090	105	106	70-130	1	20	
Molybdenum	ug/L	1.1J	1000	1000	1030	1020	103	102	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

MATRIX SPIKE SAMPLE: 1888314

Parameter	Units	60235457004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	241	1000	1220	98	70-130	
Beryllium	ug/L	<0.26	1000	978	98	70-130	
Boron	ug/L	149	1000	1090	94	70-130	
Calcium	ug/L	124000	10000	135000	105	70-130	
Cobalt	ug/L	1.2J	1000	963	96	70-130	
Lead	ug/L	2.9J	1000	951	95	70-130	
Lithium	ug/L	36.9	1000	1060	103	70-130	
Molybdenum	ug/L	<0.52	1000	1010	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461336 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60235474010, 60235474011, 60235474012

METHOD BLANK: 1888316 Matrix: Water
Associated Lab Samples: 60235474010, 60235474011, 60235474012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	01/06/17 16:07	
Beryllium	ug/L	<0.26	1.0	0.26	01/06/17 16:07	
Boron	ug/L	<50.0	100	50.0	01/06/17 16:07	
Calcium	ug/L	40.9J	100	8.1	01/06/17 16:07	
Cobalt	ug/L	<0.72	5.0	0.72	01/06/17 16:07	
Lead	ug/L	<2.5	5.0	2.5	01/06/17 16:07	
Lithium	ug/L	<4.9	10.0	4.9	01/06/17 16:07	
Molybdenum	ug/L	<0.52	20.0	0.52	01/06/17 16:07	

LABORATORY CONTROL SAMPLE: 1888317

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1070	107	85-115	
Beryllium	ug/L	1000	1070	107	85-115	
Boron	ug/L	1000	1060	106	85-115	
Calcium	ug/L	10000	10600	106	85-115	
Cobalt	ug/L	1000	1080	108	85-115	
Lead	ug/L	1000	1070	107	85-115	
Lithium	ug/L	1000	1110	111	85-115	
Molybdenum	ug/L	1000	1090	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888318 1888319

Parameter	Units	60235474010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	133	1000	1000	1210	1200	108	107	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	1060	1060	106	106	70-130	0	20	
Boron	ug/L	2480	1000	1000	3540	3490	106	101	70-130	1	20	
Calcium	ug/L	240000	10000	10000	252000	244000	122	45	70-130	3	20	M1
Cobalt	ug/L	3.3J	1000	1000	1040	1040	104	104	70-130	0	20	
Lead	ug/L	<2.5	1000	1000	1030	1030	103	103	70-130	0	20	
Lithium	ug/L	26.9	1000	1000	1170	1160	114	113	70-130	1	20	
Molybdenum	ug/L	2.3J	1000	1000	1110	1110	111	111	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461694 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60235627001, 60235627002, 60235627003

METHOD BLANK: 1889778 Matrix: Water
Associated Lab Samples: 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.58	5.0	0.58	01/11/17 16:11	
Beryllium	ug/L	<0.26	1.0	0.26	01/11/17 16:11	
Boron	ug/L	<50.0	100	50.0	01/11/17 16:11	
Calcium	ug/L	<8.1	100	8.1	01/11/17 16:11	
Cobalt	ug/L	<0.72	5.0	0.72	01/11/17 16:11	
Lead	ug/L	<2.5	5.0	2.5	01/11/17 16:11	
Lithium	ug/L	<4.9	10.0	4.9	01/11/17 16:11	
Molybdenum	ug/L	0.63J	20.0	0.52	01/11/17 16:11	

LABORATORY CONTROL SAMPLE: 1889779

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1000	100	85-115	
Beryllium	ug/L	1000	999	100	85-115	
Boron	ug/L	1000	978	98	85-115	
Calcium	ug/L	10000	9870	99	85-115	
Cobalt	ug/L	1000	1060	106	85-115	
Lead	ug/L	1000	976	98	85-115	
Lithium	ug/L	1000	1060	106	85-115	
Molybdenum	ug/L	1000	1030	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1889780 1889781

Parameter	Units	60235627003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	77.5	1000	1000	1060	1050	98	97	70-130	1	20	
Beryllium	ug/L	<0.26	1000	1000	982	982	98	98	70-130	0	20	
Boron	ug/L	564	1000	1000	1540	1550	98	99	70-130	1	20	
Calcium	ug/L	67200	10000	10000	77000	77000	97	97	70-130	0	20	
Cobalt	ug/L	<0.72	1000	1000	1030	1040	103	103	70-130	1	20	
Lead	ug/L	2.7J	1000	1000	948	946	95	94	70-130	0	20	
Lithium	ug/L	14.5	1000	1000	1070	1080	106	106	70-130	1	20	
Molybdenum	ug/L	84.8	1000	1000	1110	1100	102	102	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461338 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009

METHOD BLANK: 1888324 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.055	1.0	0.055	01/11/17 13:23	
Arsenic	ug/L	<0.25	1.0	0.25	01/11/17 13:23	
Cadmium	ug/L	<0.082	0.50	0.082	01/11/17 13:23	
Chromium	ug/L	0.28J	1.0	0.16	01/11/17 13:23	
Selenium	ug/L	<0.12	1.0	0.12	01/11/17 13:23	
Thallium	ug/L	<0.052	1.0	0.052	01/11/17 13:23	

LABORATORY CONTROL SAMPLE: 1888325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.1	100	85-115	
Arsenic	ug/L	40	38.0	95	85-115	
Cadmium	ug/L	40	39.5	99	85-115	
Chromium	ug/L	40	41.1	103	85-115	
Selenium	ug/L	40	36.5	91	85-115	
Thallium	ug/L	40	40.3	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888326 1888327

Parameter	Units	60235457003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.10J	40	40	40.1	40.4	100	101	70-130	1	20	
Arsenic	ug/L	1.6	40	40	39.6	39.2	95	94	70-130	1	20	
Cadmium	ug/L	<0.029	40	40	38.8	38.6	97	97	70-130	0	20	
Chromium	ug/L	0.55J	40	40	40.0	40.2	99	99	70-130	0	20	
Selenium	ug/L	<0.18	40	40	35.2	35.6	88	89	70-130	1	20	
Thallium	ug/L	<0.50	40	40	41.6	41.5	104	104	70-130	0	20	

MATRIX SPIKE SAMPLE: 1888328

Parameter	Units	60235457005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.31J	40	41.5	103	70-130	
Arsenic	ug/L	0.34J	40	39.6	98	70-130	
Cadmium	ug/L	0.081J	40	39.9	100	70-130	
Chromium	ug/L	0.46J	40	39.4	97	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

MATRIX SPIKE SAMPLE: 1888328

Parameter	Units	60235457005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Selenium	ug/L	1.5	40	40.4	97	70-130	
Thallium	ug/L	<0.50	40	41.0	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461339 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60235474010, 60235474011, 60235474012

METHOD BLANK: 1888329 Matrix: Water
Associated Lab Samples: 60235474010, 60235474011, 60235474012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.055	1.0	0.055	01/11/17 15:32	
Arsenic	ug/L	<0.25	1.0	0.25	01/11/17 15:32	
Cadmium	ug/L	<0.082	0.50	0.082	01/11/17 15:32	
Chromium	ug/L	0.32J	1.0	0.16	01/11/17 15:32	
Selenium	ug/L	<0.12	1.0	0.12	01/11/17 15:32	
Thallium	ug/L	<0.052	1.0	0.052	01/11/17 15:32	

LABORATORY CONTROL SAMPLE: 1888330

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	41.4	103	85-115	
Arsenic	ug/L	40	38.8	97	85-115	
Cadmium	ug/L	40	40.8	102	85-115	
Chromium	ug/L	40	41.2	103	85-115	
Selenium	ug/L	40	37.8	94	85-115	
Thallium	ug/L	40	40.5	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888331 1888332

Parameter	Units	60235474011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.058	40	40	41.4	40.1	104	100	70-130	3	20	
Arsenic	ug/L	<0.10	40	40	39.4	37.5	98	94	70-130	5	20	
Cadmium	ug/L	<0.029	40	40	41.0	40.2	102	100	70-130	2	20	
Chromium	ug/L	0.66J	40	40	40.8	41.0	100	101	70-130	0	20	
Selenium	ug/L	<0.18	40	40	39.6	36.3	99	91	70-130	9	20	
Thallium	ug/L	<0.50	40	40	39.9	39.7	100	99	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461742 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60235627001, 60235627002, 60235627003

METHOD BLANK: 1889994 Matrix: Water
Associated Lab Samples: 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.055	1.0	0.055	01/12/17 10:32	
Arsenic	ug/L	<0.25	1.0	0.25	01/12/17 10:32	
Cadmium	ug/L	<0.082	0.50	0.082	01/12/17 10:32	
Chromium	ug/L	<0.16	1.0	0.16	01/12/17 10:32	
Selenium	ug/L	<0.12	1.0	0.12	01/12/17 10:32	
Thallium	ug/L	<0.052	1.0	0.052	01/12/17 10:32	

LABORATORY CONTROL SAMPLE: 1889995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.2	101	85-115	
Arsenic	ug/L	40	39.6	99	85-115	
Cadmium	ug/L	40	40.7	102	85-115	
Chromium	ug/L	40	40.6	102	85-115	
Selenium	ug/L	40	40.6	101	85-115	
Thallium	ug/L	40	40.2	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1889996 1889997

Parameter	Units	60235627003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.34J	40	40	40.3	40.3	100	100	70-130	0	20	
Arsenic	ug/L	1.7	40	40	41.4	41.3	99	99	70-130	0	20	
Cadmium	ug/L	0.084J	40	40	39.9	39.6	99	99	70-130	1	20	
Chromium	ug/L	0.46J	40	40	40.6	40.7	100	101	70-130	0	20	
Selenium	ug/L	1.0	40	40	39.8	39.6	97	96	70-130	1	20	
Thallium	ug/L	<0.50	40	40	42.0	41.5	105	104	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461337 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012

METHOD BLANK: 1888320 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	01/06/17 10:39	

LABORATORY CONTROL SAMPLE: 1888321

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

SAMPLE DUPLICATE: 1888322

Parameter	Units	60235335001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6900	6850	1	10	

SAMPLE DUPLICATE: 1888323

Parameter	Units	60235514003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	693	692	0	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461476 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60235474009

METHOD BLANK: 1888970 Matrix: Water
Associated Lab Samples: 60235474009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	01/09/17 11:31	

LABORATORY CONTROL SAMPLE: 1888971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	987	99	80-120	

SAMPLE DUPLICATE: 1888972

Parameter	Units	60235451001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4730	4900	4	10	

SAMPLE DUPLICATE: 1888973

Parameter	Units	60235514005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	841	813	3	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461527 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60235627001, 60235627002, 60235627003

METHOD BLANK: 1889118 Matrix: Water
Associated Lab Samples: 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	01/09/17 15:57	

LABORATORY CONTROL SAMPLE: 1889119

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

SAMPLE DUPLICATE: 1889120

Parameter	Units	60235625001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	374	377	1	10	

SAMPLE DUPLICATE: 1889121

Parameter	Units	60235627003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	367	375	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461642 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007

SAMPLE DUPLICATE: 1889573

Parameter	Units	60235457003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 461643 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60235474008, 60235474009, 60235474010, 60235474011, 60235474012

SAMPLE DUPLICATE: 1889574

Parameter	Units	60235474008 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.4	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 462105 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60235627001, 60235627002

SAMPLE DUPLICATE: 1892038

Parameter	Units	60235625001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.6	5	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 462106
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60235627003

SAMPLE DUPLICATE: 1892039

Parameter	Units	60235627003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.6	4	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 462036 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235627001, 60235627002, 60235627003

METHOD BLANK: 1891820 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	01/15/17 16:42	
Fluoride	mg/L	<0.027	0.20	0.027	01/15/17 16:42	
Sulfate	mg/L	<0.15	1.0	0.15	01/15/17 16:42	

LABORATORY CONTROL SAMPLE: 1891821

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	101	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1891822 1891823

Parameter	Units	60235474001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.31	2.5	2.5	2.9	3.1	105	111	80-120	5	15	

MATRIX SPIKE SAMPLE: 1891824

Parameter	Units	60235627003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.25	2.5	2.9	108	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 462119 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235627001, 60235627002, 60235627003

METHOD BLANK: 1892092 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235627001, 60235627002, 60235627003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	01/17/17 15:56	
Sulfate	mg/L	<0.15	1.0	0.15	01/17/17 15:56	

LABORATORY CONTROL SAMPLE: 1892093

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1892094 1892095

Parameter	Units	60235474003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	856	500	500	1470	1440	123	117	80-120	2	15	M1

MATRIX SPIKE SAMPLE: 1892096

Parameter	Units	60235627003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20.5	10	31.3	108	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-2S **Lab ID: 60235474001** Collected: 01/04/17 14:58 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.240 ± 0.520 (1.20) C:NA T:91%**	pCi/L	01/28/17 11:18	13982-63-3	
Radium-228	EPA 904.0	**0.369 ± 0.460 (0.976) C:56% T:86%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-5S **Lab ID: 60235474002** Collected: 01/04/17 09:22 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.413 ± 0.380 (0.224) C:NA T:92%**	pCi/L	01/28/17 11:18	13982-63-3	
Radium-228	EPA 904.0	**0.0962 ± 0.365 (0.827) C:64% T:87%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-6S **Lab ID: 60235474003** Collected: 01/04/17 10:57 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.339 ± 0.472 (0.788) C:NA T:86%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.373 ± 0.514 (1.10) C:55% T:80%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-7S **Lab ID: 60235474004** Collected: 01/04/17 11:42 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.459 (0.995) C:NA T:89%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.466 ± 0.455 (0.937) C:63% T:81%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-8S **Lab ID: 60235474005** Collected: 01/04/17 12:52 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.834 ± 0.574 (0.614) C:NA T:90%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.702 ± 0.424 (0.791) C:71% T:83%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-9S **Lab ID: 60235474006** Collected: 01/04/17 14:09 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.457 ± 0.475 (0.708) C:NA T:98%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.645 ± 0.492 (0.971) C:58% T:82%**	pCi/L	01/30/17 16:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-BMW-1S **Lab ID: 60235474007** Collected: 01/04/17 12:35 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0857 ± 0.391 (0.631) C:NA T:87%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.545 ± 0.533 (1.10) C:50% T:82%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-BMW-3S **Lab ID: 60235474008** Collected: 01/04/17 15:20 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.399 ± 0.472 (0.741) C:NA T:93%**	pCi/L	01/28/17 11:34	13982-63-3	
Radium-228	EPA 904.0	**0.822 ± 0.480 (0.893) C:60% T:91%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-DUP-1 **Lab ID: 60235474009** Collected: 01/04/17 08:00 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.085 ± 0.388 (0.789) C:NA T:88%**	pCi/L	01/28/17 11:49	13982-63-3	
Radium-228	EPA 904.0	**-0.0859 ± 0.443 (1.05) C:58% T:77%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-DUP-2 **Lab ID: 60235474010** Collected: 01/04/17 08:00 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.244 ± 0.423 (0.757) C:NA T:89%**	pCi/L	01/28/17 11:49	13982-63-3	
Radium-228	EPA 904.0	**0.560 ± 0.442 (0.882) C:64% T:86%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-FB-1 **Lab ID: 60235474011** Collected: 01/04/17 10:40 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.163 ± 0.451 (0.875) C:NA T:89%**	pCi/L	01/28/17 11:49	13982-63-3	
Radium-228	EPA 904.0	**0.208 ± 0.424 (0.933) C:62% T:96%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-FB-2 **Lab ID: 60235474012** Collected: 01/04/17 14:55 Received: 01/05/17 05:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0835 ± 0.381 (0.615) C:NA T:90%**	pCi/L	01/28/17 11:50	13982-63-3	
Radium-228	EPA 904.0	**0.595 ± 0.466 (0.923) C:59% T:83%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-3S **Lab ID: 60235627001** Collected: 01/05/17 16:20 Received: 01/07/17 03:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.185 ± 0.423 (0.996) C:NA T:82%**	pCi/L	01/28/17 12:05	13982-63-3	
Radium-228	EPA 904.0	**0.437 ± 0.352 (0.696) C:70% T:86%**	pCi/L	01/30/17 16:08	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-4S **Lab ID: 60235627002** Collected: 01/05/17 16:41 Received: 01/07/17 03:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.474 ± 0.540 (0.851) C:NA T:94%**	pCi/L	01/28/17 12:05	13982-63-3	
Radium-228	EPA 904.0	**0.577 ± 0.392 (0.738) C:58% T:88%**	pCi/L	01/30/17 16:09	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-1S **Lab ID: 60235627003** Collected: 01/05/17 09:25 Received: 01/07/17 03:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.083 ± 0.380 (0.897) C:NA T:88%**	pCi/L	01/28/17 12:08	13982-63-3	
Radium-228	EPA 904.0	**-0.0844 ± 0.315 (0.762) C:61% T:89%**	pCi/L	01/30/17 16:09	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-1S MS **Lab ID: 60235474016** Collected: 01/05/17 09:25 Received: 01/07/17 03:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**114.3%REC ± NA (NA)**	pCi/L	01/28/17 12:08	13982-63-3	
Radium-228	EPA 904.0	**112 %REC +/- NA (NA) C:NA T:NA**	pCi/L	01/30/17 16:09	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Sample: S-LMW-1S MSD **Lab ID: 60235474017** Collected: 01/05/17 09:25 Received: 01/07/17 03:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**85.9%REC 28.33RPD ± NA (NA)**	pCi/L	01/28/17 12:08	13982-63-3	
Radium-228	EPA 904.0	**101 %REC 10.5 RPD +/- NA (NA) C:NA T:NA**	pCi/L	01/30/17 16:09	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 246431 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235474016, 60235474017, 60235627001, 60235627002, 60235627003

METHOD BLANK: 1211778 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235474016, 60235474017, 60235627001, 60235627002, 60235627003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.423 (0.682) C:NA T:80%	pCi/L	01/28/17 11:18	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

QC Batch: 246432 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235474016, 60235474017, 60235627001, 60235627002, 60235627003

METHOD BLANK: 1211779 Matrix: Water
Associated Lab Samples: 60235474001, 60235474002, 60235474003, 60235474004, 60235474005, 60235474006, 60235474007, 60235474008, 60235474009, 60235474010, 60235474011, 60235474012, 60235474016, 60235474017, 60235627001, 60235627002, 60235627003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.196 ± 0.401 (0.883) C:62% T:84%	pCi/L	01/30/17 16:07	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60235474001	S-LMW-2S	EPA 200.7	461335	EPA 200.7	461385
60235474002	S-LMW-5S	EPA 200.7	461335	EPA 200.7	461385
60235474003	S-LMW-6S	EPA 200.7	461335	EPA 200.7	461385
60235474004	S-LMW-7S	EPA 200.7	461335	EPA 200.7	461385
60235474005	S-LMW-8S	EPA 200.7	461335	EPA 200.7	461385
60235474006	S-LMW-9S	EPA 200.7	461335	EPA 200.7	461385
60235474007	S-BMW-1S	EPA 200.7	461335	EPA 200.7	461385
60235474008	S-BMW-3S	EPA 200.7	461335	EPA 200.7	461385
60235474009	S-LMW-DUP-1	EPA 200.7	461335	EPA 200.7	461385
60235474010	S-LMW-DUP-2	EPA 200.7	461336	EPA 200.7	461387
60235474011	S-LMW-FB-1	EPA 200.7	461336	EPA 200.7	461387
60235474012	S-LMW-FB-2	EPA 200.7	461336	EPA 200.7	461387
60235627001	S-LMW-3S	EPA 200.7	461694	EPA 200.7	461746
60235627002	S-LMW-4S	EPA 200.7	461694	EPA 200.7	461746
60235627003	S-LMW-1S	EPA 200.7	461694	EPA 200.7	461746
60235474001	S-LMW-2S	EPA 200.8	461338	EPA 200.8	461386
60235474002	S-LMW-5S	EPA 200.8	461338	EPA 200.8	461386
60235474003	S-LMW-6S	EPA 200.8	461338	EPA 200.8	461386
60235474004	S-LMW-7S	EPA 200.8	461338	EPA 200.8	461386
60235474005	S-LMW-8S	EPA 200.8	461338	EPA 200.8	461386
60235474006	S-LMW-9S	EPA 200.8	461338	EPA 200.8	461386
60235474007	S-BMW-1S	EPA 200.8	461338	EPA 200.8	461386
60235474008	S-BMW-3S	EPA 200.8	461338	EPA 200.8	461386
60235474009	S-LMW-DUP-1	EPA 200.8	461338	EPA 200.8	461386
60235474010	S-LMW-DUP-2	EPA 200.8	461339	EPA 200.8	461389
60235474011	S-LMW-FB-1	EPA 200.8	461339	EPA 200.8	461389
60235474012	S-LMW-FB-2	EPA 200.8	461339	EPA 200.8	461389
60235627001	S-LMW-3S	EPA 200.8	461742	EPA 200.8	461760
60235627002	S-LMW-4S	EPA 200.8	461742	EPA 200.8	461760
60235627003	S-LMW-1S	EPA 200.8	461742	EPA 200.8	461760
60235474001	S-LMW-2S	EPA 7470	461806	EPA 7470	461843
60235474002	S-LMW-5S	EPA 7470	461806	EPA 7470	461843
60235474003	S-LMW-6S	EPA 7470	461806	EPA 7470	461843
60235474004	S-LMW-7S	EPA 7470	461806	EPA 7470	461843
60235474005	S-LMW-8S	EPA 7470	461806	EPA 7470	461843
60235474006	S-LMW-9S	EPA 7470	461806	EPA 7470	461843
60235474007	S-BMW-1S	EPA 7470	461806	EPA 7470	461843
60235474008	S-BMW-3S	EPA 7470	461806	EPA 7470	461843
60235474009	S-LMW-DUP-1	EPA 7470	461806	EPA 7470	461843
60235474010	S-LMW-DUP-2	EPA 7470	461806	EPA 7470	461843
60235474011	S-LMW-FB-1	EPA 7470	461806	EPA 7470	461843
60235474012	S-LMW-FB-2	EPA 7470	461806	EPA 7470	461843
60235627001	S-LMW-3S	EPA 7470	461806	EPA 7470	461843
60235627002	S-LMW-4S	EPA 7470	461806	EPA 7470	461843
60235627003	S-LMW-1S	EPA 7470	461806	EPA 7470	461843

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60235474001	S-LMW-2S	EPA 903.1	246431		
60235474002	S-LMW-5S	EPA 903.1	246431		
60235474003	S-LMW-6S	EPA 903.1	246431		
60235474004	S-LMW-7S	EPA 903.1	246431		
60235474005	S-LMW-8S	EPA 903.1	246431		
60235474006	S-LMW-9S	EPA 903.1	246431		
60235474007	S-BMW-1S	EPA 903.1	246431		
60235474008	S-BMW-3S	EPA 903.1	246431		
60235474009	S-LMW-DUP-1	EPA 903.1	246431		
60235474010	S-LMW-DUP-2	EPA 903.1	246431		
60235474011	S-LMW-FB-1	EPA 903.1	246431		
60235474012	S-LMW-FB-2	EPA 903.1	246431		
60235627001	S-LMW-3S	EPA 903.1	246431		
60235627002	S-LMW-4S	EPA 903.1	246431		
60235627003	S-LMW-1S	EPA 903.1	246431		
60235474016	S-LMW-1S MS	EPA 903.1	246431		
60235474017	S-LMW-1S MSD	EPA 903.1	246431		
60235474001	S-LMW-2S	EPA 904.0	246432		
60235474002	S-LMW-5S	EPA 904.0	246432		
60235474003	S-LMW-6S	EPA 904.0	246432		
60235474004	S-LMW-7S	EPA 904.0	246432		
60235474005	S-LMW-8S	EPA 904.0	246432		
60235474006	S-LMW-9S	EPA 904.0	246432		
60235474007	S-BMW-1S	EPA 904.0	246432		
60235474008	S-BMW-3S	EPA 904.0	246432		
60235474009	S-LMW-DUP-1	EPA 904.0	246432		
60235474010	S-LMW-DUP-2	EPA 904.0	246432		
60235474011	S-LMW-FB-1	EPA 904.0	246432		
60235474012	S-LMW-FB-2	EPA 904.0	246432		
60235627001	S-LMW-3S	EPA 904.0	246432		
60235627002	S-LMW-4S	EPA 904.0	246432		
60235627003	S-LMW-1S	EPA 904.0	246432		
60235474016	S-LMW-1S MS	EPA 904.0	246432		
60235474017	S-LMW-1S MSD	EPA 904.0	246432		
60235474001	S-LMW-2S	SM 2540C	461337		
60235474002	S-LMW-5S	SM 2540C	461337		
60235474003	S-LMW-6S	SM 2540C	461337		
60235474004	S-LMW-7S	SM 2540C	461337		
60235474005	S-LMW-8S	SM 2540C	461337		
60235474006	S-LMW-9S	SM 2540C	461337		
60235474007	S-BMW-1S	SM 2540C	461337		
60235474008	S-BMW-3S	SM 2540C	461337		
60235474009	S-LMW-DUP-1	SM 2540C	461337		
60235474009	S-LMW-DUP-1	SM 2540C	461476		
60235474010	S-LMW-DUP-2	SM 2540C	461337		
60235474011	S-LMW-FB-1	SM 2540C	461337		
60235474012	S-LMW-FB-2	SM 2540C	461337		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60235627001	**S-LMW-3S**	SM 2540C	461527		
60235627002	**S-LMW-4S**	SM 2540C	461527		
60235627003	**S-LMW-1S**	SM 2540C	461527		
60235474001	**S-LMW-2S**	SM 4500-H+B	461642		
60235474002	**S-LMW-5S**	SM 4500-H+B	461642		
60235474003	**S-LMW-6S**	SM 4500-H+B	461642		
60235474004	**S-LMW-7S**	SM 4500-H+B	461642		
60235474005	**S-LMW-8S**	SM 4500-H+B	461642		
60235474006	**S-LMW-9S**	SM 4500-H+B	461642		
60235474007	**S-BMW-1S**	SM 4500-H+B	461642		
60235474008	**S-BMW-3S**	SM 4500-H+B	461643		
60235474009	**S-LMW-DUP-1**	SM 4500-H+B	461643		
60235474010	**S-LMW-DUP-2**	SM 4500-H+B	461643		
60235474011	**S-LMW-FB-1**	SM 4500-H+B	461643		
60235474012	**S-LMW-FB-2**	SM 4500-H+B	461643		
60235627001	**S-LMW-3S**	SM 4500-H+B	462105		
60235627002	**S-LMW-4S**	SM 4500-H+B	462105		
60235627003	**S-LMW-1S**	SM 4500-H+B	462106		
60235474001	**S-LMW-2S**	EPA 300.0	462036		
60235474001	**S-LMW-2S**	EPA 300.0	462119		
60235474002	**S-LMW-5S**	EPA 300.0	462036		
60235474002	**S-LMW-5S**	EPA 300.0	462119		
60235474003	**S-LMW-6S**	EPA 300.0	462036		
60235474003	**S-LMW-6S**	EPA 300.0	462119		
60235474004	**S-LMW-7S**	EPA 300.0	462036		
60235474004	**S-LMW-7S**	EPA 300.0	462119		
60235474005	**S-LMW-8S**	EPA 300.0	462036		
60235474005	**S-LMW-8S**	EPA 300.0	462119		
60235474006	**S-LMW-9S**	EPA 300.0	462036		
60235474006	**S-LMW-9S**	EPA 300.0	462119		
60235474007	**S-BMW-1S**	EPA 300.0	462036		
60235474007	**S-BMW-1S**	EPA 300.0	462119		
60235474008	**S-BMW-3S**	EPA 300.0	462036		
60235474008	**S-BMW-3S**	EPA 300.0	462119		
60235474009	**S-LMW-DUP-1**	EPA 300.0	462036		
60235474009	**S-LMW-DUP-1**	EPA 300.0	462119		
60235474010	**S-LMW-DUP-2**	EPA 300.0	462036		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60235474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60235474010	**S-LMW-DUP-2**	EPA 300.0	462119		
60235474011	**S-LMW-FB-1**	EPA 300.0	462036		
60235474012	**S-LMW-FB-2**	EPA 300.0	462036		
60235627001	**S-LMW-3S**	EPA 300.0	462036		
60235627001	**S-LMW-3S**	EPA 300.0	462119		
60235627002	**S-LMW-4S**	EPA 300.0	462036		
60235627002	**S-LMW-4S**	EPA 300.0	462119		
60235627003	**S-LMW-1S**	EPA 300.0	462036		
60235627003	**S-LMW-1S**	EPA 300.0	462119		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60235474

60235474

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: CF +0.7 / CF -0.5 T-266 / T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read _____ **Corr. Factor** CF +0.7 CF +0.9 **Corrected** _____

BB 1/5/17
Date and initials of person examining contents:

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	pH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	- SAMPLE S-BMW-3S on CoC has hand altered ID on containers of S-BMW-3D collected @ 1429
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	- Pre printed portion of label says it is from Fly Ash site
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	- The hand written ID/time on labels matches a sample on Bottom Ash CoC
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	- possible mix up
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	
Cyanide water sample checks: ☑N/A		
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	JLS

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per client, sample S-BMW-2D should be S-BMW-3S @ 1520 and S-BMW-3S should be S-BMW-3D

Project Manager Review: Jann Check Date: 1/5/17

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:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60235474
1	~~S-LMW-1S~~	WT	G																						
2	S-LMW-2S	WT	G			1/4/17	1458		4	1		3							1	1	1	1	2		BP2U BP3N 2BP1N
3	~~S-LMW-3S~~	WT	G																						
4	~~S-LMW-4S~~	WT	G																						
5	S-LMW-5S	WT	G			1/4/17	0922		4	1		3							1	1	1	1	2		
6	S-LMW-6S	WT	G				1057																		
7	S-LMW-7S	WT	G				1142																		
8	S-LMW-8S	WT	G				1252																		
9	S-LMW-9S	WT	G				1409																		
10	S-BMW-1S	WT	G				1235																		
11	S-BMW-~~2S~~ 3S	WT	G				1520																		
12	S-LMW-DUP-1	WT	G			↓	—		↓	↓		↓							↓	↓	↓	↓	↓		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Smoczi / Golder	1/4/17	1620	Richard Mannig	1/4/17	16:36
	Richard Mannig	1/4/17	1700		1/5/17	0545

SAMPLE CONDITIONS			
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
17.2	N	Y	Y
15.1	N	Y	Y
4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Smoczi

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 01/04/17

*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
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: 2 of 2

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100, St Charles, MO 63301
Email To:	maddock@golder.com
Phone:	636-724-9191
Fax:	636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

Section C Invoice Information:

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

REGULATORY AGENCY: NPDES, X 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): Metals* N, Chloride/Fluoride/Sulfate N, TDS N, pH N, Radium 226 & 228 N

Pace Project No./ Lab I.D.: 60235474

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-DUP-2	WT	G			1/4/17	—		4	1		3						1	1	1	1	2		8P2W 6P3N 2BPIN 010
2	S-LMW-FB-1	WT	G			↓	1040		4	1		3						1	1	1	1	2		↓ 011
3	~~S-LMW-FB-2~~	WT	G			↓	1455		4	1		3						1	1	1	1	2		012
4	S-LMW-FB-2																							
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg; EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Snozzi / Golder	1/4/17	1620	[signature]	1/4/17	16:36				
	[signature]	1/4/17	1700	[signature]	1/5/17	0545	7.2	N	Y	Y
							15.1	N	Y	Y
							4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Snozzi

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 01/04/17

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60235627

60235627

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: CF +0.7 / CF -0.5 T-266 / T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 0.9/8.5 **Corr. Factor** CF +0.7 CF +0.9 **Corrected** 1.6/9.2

Date and initials of person examining contents: BB 1/7/17

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	pH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	BB 1/7/17
Cyanide water sample checks: ☐ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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: _____

Jann Check 1/9/17

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

2057391

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street St. Charles MO. 63301
Email To:	
Phone: 636-724-9191	Fax: –
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Mark Maddox mmaddox@golder.com
Copy To:	
Purchase Order No.:	
Project Name:	Sioux Fly Ash
Project Number:	153140422.0003B

Section C Invoice Information:

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

REGULATORY AGENCY

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

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

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	Metals	Chloride/Fluoride/Sulfate	TDS	pH	Residual	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-3S					11/5/17	1620		4	1		3							1	1	1	1	2		60235627 1.5
2	S-LMW-4S					1	1641		4	1		3							1	1	1	1	2		
3	S-LMW-1S					1	0925		4	3		4							3	3	3	3	6		
4									12																
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

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)
	[signature] / Golder	11/6/17	1730	[signature]	1/7/17	0340	9.2	N	Y	Y
							1.0	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Suozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 01/06/17

*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.07, 15-May-2007

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

March 03, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2017. 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, 3/3/17: Report revised to split samples into separate reports.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60237185002	**S-BMW-3S**	Water	02/02/17 11:22	02/03/17 03:55

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60237185002	**S-BMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	SMW	6	PASI-K
		EPA 7470	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JMC1	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Sample: S-BMW-3S **Lab ID: 60237185002** Collected: 02/02/17 11:22 Received: 02/03/17 03:55 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								
Barium	**146**	ug/L	5.0	0.58	1	02/03/17 16:15	02/06/17 16:23	7440-39-3	
Beryllium	**<0.26**	ug/L	1.0	0.26	1	02/03/17 16:15	02/06/17 16:23	7440-41-7	
Boron	**61.5J**	ug/L	100	50.0	1	02/03/17 16:15	02/06/17 16:23	7440-42-8	
Calcium	**127000**	ug/L	100	8.1	1	02/03/17 16:15	02/06/17 16:23	7440-70-2	
Cobalt	**2.2J**	ug/L	5.0	0.72	1	02/03/17 16:15	02/06/17 16:23	7440-48-4	
Lead	**<2.5**	ug/L	5.0	2.5	1	02/03/17 16:15	02/06/17 16:23	7439-92-1	
Lithium	**<4.9**	ug/L	10.0	4.9	1	02/03/17 16:15	02/06/17 16:23	7439-93-2	
Molybdenum	**2.6J**	ug/L	20.0	0.52	1	02/03/17 16:15	02/06/17 16:23	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.026	1	02/08/17 11:30	02/13/17 12:28	7440-36-0	B
Arsenic	**1.3**	ug/L	1.0	0.052	1	02/08/17 11:30	02/13/17 12:28	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	02/08/17 11:30	02/13/17 12:28	7440-43-9	
Chromium	**0.50J**	ug/L	1.0	0.054	1	02/08/17 11:30	02/13/17 12:28	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	02/08/17 11:30	02/13/17 12:28	7782-49-2	
Thallium	**0.041J**	ug/L	1.0	0.036	1	02/08/17 11:30	02/13/17 12:28	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.063J**	ug/L	0.20	0.039	1	02/06/17 09:45	02/06/17 13:17	7439-97-6	B
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**455**	mg/L	5.0	5.0	1		02/08/17 10:00		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		02/13/17 12:44		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.0**	mg/L	1.0	0.50	1		02/04/17 17:07	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.027	1		02/04/17 17:07	16984-48-8	
Sulfate	**27.1**	mg/L	2.0	0.31	2		02/04/17 17:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464462 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60237185002

METHOD BLANK: 1901187 Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	0.10J	0.20	0.039	02/06/17 12:42	

LABORATORY CONTROL SAMPLE: 1901188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.5	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1901189 1901190

Parameter	Units	60236274001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.12J	5	5	5.5	5.2	107	102	75-125	5	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464383
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60237185002

METHOD BLANK: 1900682
Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	02/06/17 15:49	
Beryllium	ug/L	<0.16	1.0	0.16	02/06/17 15:49	
Boron	ug/L	<3.5	100	3.5	02/06/17 15:49	
Calcium	ug/L	<36.0	100	36.0	02/06/17 15:49	
Cobalt	ug/L	<0.73	5.0	0.73	02/06/17 15:49	
Lead	ug/L	<2.4	5.0	2.4	02/06/17 15:49	
Lithium	ug/L	<2.9	10.0	2.9	02/06/17 15:49	
Molybdenum	ug/L	<1.3	20.0	1.3	02/06/17 15:49	

LABORATORY CONTROL SAMPLE: 1900683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	1020	102	85-115	
Boron	ug/L	1000	932	93	85-115	
Calcium	ug/L	10000	9970	100	85-115	
Cobalt	ug/L	1000	1030	103	85-115	
Lead	ug/L	1000	1020	102	85-115	
Lithium	ug/L	1000	1060	106	85-115	
Molybdenum	ug/L	1000	1130	113	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1900684 1900685

Parameter	Units	60237217001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	0.075 mg/L	1000	1000	1080	1120	101	104	70-130	3	20	
Beryllium	ug/L	ND	1000	1000	1000	1030	100	103	70-130	3	20	
Boron	ug/L	ND	1000	1000	970	990	93	95	70-130	2	20	
Calcium	ug/L	43.4 mg/L	10000	10000	51200	53000	78	97	70-130	3	20	
Cobalt	ug/L	ND	1000	1000	994	1020	99	102	70-130	2	20	
Lead	ug/L	ND	1000	1000	987	1010	99	100	70-130	2	20	
Lithium	ug/L	ND	1000	1000	1040	1080	103	107	70-130	3	20	
Molybdenum	ug/L	ND	1000	1000	1120	1140	112	114	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

MATRIX SPIKE SAMPLE: 1900686

Parameter	Units	60237222008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	38.0	1000	1050	101	70-130	
Beryllium	ug/L	ND	1000	998	100	70-130	
Boron	ug/L	ND	1000	924	92	70-130	
Calcium	ug/L	17300	10000	26400	92	70-130	
Cobalt	ug/L	ND	1000	1000	100	70-130	
Lead	ug/L	ND	1000	1000	100	70-130	
Lithium	ug/L	ND	1000	1040	104	70-130	
Molybdenum	ug/L	ND	1000	1120	112	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464778 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60237185002

METHOD BLANK: 1902182 Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	0.18J	1.0	0.026	02/13/17 12:02	
Arsenic	ug/L	<0.052	1.0	0.052	02/13/17 12:02	
Cadmium	ug/L	<0.018	0.50	0.018	02/13/17 12:02	
Chromium	ug/L	<0.054	1.0	0.054	02/13/17 12:02	
Selenium	ug/L	<0.086	1.0	0.086	02/13/17 12:02	
Thallium	ug/L	<0.036	1.0	0.036	02/13/17 12:02	

LABORATORY CONTROL SAMPLE: 1902183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.3	96	85-115	
Arsenic	ug/L	40	39.2	98	85-115	
Cadmium	ug/L	40	39.1	98	85-115	
Chromium	ug/L	40	40.5	101	85-115	
Selenium	ug/L	40	39.5	99	85-115	
Thallium	ug/L	40	36.9	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1902184 1902185

Parameter	Units	60237356001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.25J	40	40	38.8	39.0	96	97	70-130	1	20	
Arsenic	ug/L	<0.052	40	40	39.1	38.9	98	97	70-130	1	20	
Cadmium	ug/L	<0.018	40	40	37.9	39.0	95	97	70-130	3	20	
Chromium	ug/L	0.66J	40	40	38.8	40.0	95	98	70-130	3	20	
Selenium	ug/L	<0.086	40	40	38.5	38.3	96	96	70-130	1	20	
Thallium	ug/L	<0.036	40	40	36.0	36.8	90	92	70-130	2	20	

MATRIX SPIKE SAMPLE: 1902186

Parameter	Units	60237356002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	1.4	40	39.9	96	70-130	
Arsenic	ug/L	2.9	40	41.8	97	70-130	
Cadmium	ug/L	1.7	40	39.1	94	70-130	
Chromium	ug/L	0.97J	40	38.8	95	70-130	
Selenium	ug/L	<0.086	40	38.3	96	70-130	
Thallium	ug/L	0.16J	40	36.1	90	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464737 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60237185002

METHOD BLANK: 1902098 Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	02/08/17 10:00	

LABORATORY CONTROL SAMPLE: 1902099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 1902191

Parameter	Units	60237315002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3420	3580	5	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464959
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60237185002

SAMPLE DUPLICATE: 1903138

Parameter	Units	60237044003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.3	6.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 464392
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60237185002

METHOD BLANK: 1900744
Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	02/04/17 11:38	
Fluoride	mg/L	<0.027	0.20	0.027	02/04/17 11:38	
Sulfate	mg/L	<0.15	1.0	0.15	02/04/17 11:38	

LABORATORY CONTROL SAMPLE: 1900745

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

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Sample: S-BMW-3S **Lab ID: 60237185002** Collected: 02/02/17 11:22 Received: 02/03/17 03:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.135 ± 0.530 (1.02) C:NA T:84%**	pCi/L	02/28/17 10:10	13982-63-3	
Radium-228	EPA 904.0	**0.625 ± 0.482 (0.939) C:57% T:82%**	pCi/L	03/01/17 19:19	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 249802 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60237185002

METHOD BLANK: 1229201 Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.065 ± 0.299 (0.608) C:NA T:90%	pCi/L	02/28/17 10:10	

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

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

QC Batch: 249956 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60237185002

METHOD BLANK: 1229809 Matrix: Water
Associated Lab Samples: 60237185002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.993 ± 0.490 (0.830) C:56% T:84%	pCi/L	03/01/17 15:20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CENTER-FLY
Pace Project No.: 60237185

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60237185002	**S-BMW-3S**	EPA 200.7	464383	EPA 200.7	464444
60237185002	**S-BMW-3S**	EPA 200.8	464778	EPA 200.8	464815
60237185002	**S-BMW-3S**	EPA 7470	464462	EPA 7470	464469
60237185002	**S-BMW-3S**	EPA 903.1	249802		
60237185002	**S-BMW-3S**	EPA 904.0	249956		
60237185002	**S-BMW-3S**	SM 2540C	464737		
60237185002	**S-BMW-3S**	SM 4500-H+B	464959		
60237185002	**S-BMW-3S**	EPA 300.0	464392		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60237185

60237185

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: CF +1.5 T-266 / CF +0.9 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 0.6/13.3 **Corr. Factor** CF +1.5 CF +0.9 **Corrected** 2.1/14.8

Date and initials of person examining contents: pvr 3/17

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	pH
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	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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	JLS

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
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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:	FLYASH + Bottom Ash	Pace Quote Reference:	
Phone:	636-724-9191 Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - UWL	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B + 0003A	Pace Profile #:	9285

REGULATORY AGENCY

NPDES X 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	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-BMW-3D	WT	G			2/2/17	1030		4	1		3						N	1	1	1	1	2		60237185 1BP3N 2.0 1BP2U 2SP1N 001
2	S-BMW-35	WT	G			"	1122		4	1		3						N	1	1	1	1	2		" " " 002
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																						

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

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Snoozi/Golder	2/2/17	1215	[signature]	2/3/17	12:15				
	[signature]	2/2/17	17:00	[signature]	2/3/17	0355	2.1	X	Y	X
							14.3	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Snoozi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/02/17

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

April 05, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on March 10, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60239431001	**S-LMW-1S**	Water	03/09/17 13:25	03/10/17 03:45
60239431002	**S-LMW-2S**	Water	03/08/17 15:45	03/10/17 03:45
60239431003	**S-LMW-3S**	Water	03/08/17 15:43	03/10/17 03:45
60239431004	**S-LMW-4S**	Water	03/08/17 14:37	03/10/17 03:45
60239431005	**S-LMW-5S**	Water	03/09/17 09:03	03/10/17 03:45
60239431006	**S-LMW-6S**	Water	03/09/17 09:40	03/10/17 03:45
60239431007	**S-LMW-7S**	Water	03/09/17 10:20	03/10/17 03:45
60239431008	**S-LMW-8S**	Water	03/09/17 11:00	03/10/17 03:45
60239431009	**S-LMW-9S**	Water	03/08/17 15:42	03/10/17 03:45
60239431010	**S-BMW-1S**	Water	03/08/17 12:40	03/10/17 03:45
60239431011	**S-BMW-3S**	Water	03/08/17 11:17	03/10/17 03:45
60239431012	**S-LMW-DUP-1**	Water	03/08/17 08:00	03/10/17 03:45
60239431013	**S-LMW-DUP-2**	Water	03/08/17 08:00	03/10/17 03:45
60239431014	**S-LMW-FB-1**	Water	03/09/17 08:00	03/10/17 03:45
60239431015	**S-LMW-FB-2**	Water	03/09/17 08:00	03/10/17 03:45
60239431016	**S-LMW-1S MS**	Water	03/09/17 13:25	03/10/17 03:45
60239431017	**S-LMW-1S MSD**	Water	03/09/17 13:25	03/10/17 03:45

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60239431001	**S-LMW-1S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431002	**S-LMW-2S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431003	**S-LMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431004	**S-LMW-4S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431005	**S-LMW-5S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431006	**S-LMW-6S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431007	**S-LMW-7S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431008	**S-LMW-8S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431009	**S-LMW-9S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431010	**S-BMW-1S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431011	**S-BMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431012	**S-LMW-DUP-1**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431013	**S-LMW-DUP-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431014	**S-LMW-FB-1**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0	OL	3	PASI-K
60239431015	**S-LMW-FB-2**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60239431016	**S-LMW-1S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60239431017	**S-LMW-1S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-1S **Lab ID: 60239431001** Collected: 03/09/17 13:25 Received: 03/10/17 03:45 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								
Barium	**102**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 17:55	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 17:55	7440-41-7	
Boron	**394**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 17:55	7440-42-8	
Calcium	**78200**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 17:55	7440-70-2	
Cobalt	**1.1J**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 17:55	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 17:55	7439-92-1	
Lithium	**14.1**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 17:55	7439-93-2	
Molybdenum	**75.0**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 17:55	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.37J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:27	7440-36-0	
Arsenic	**1.8**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:27	7440-38-2	
Cadmium	**0.047J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:27	7440-43-9	
Chromium	**0.52J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:27	7440-47-3	B
Selenium	**1.4**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:27	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:27	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 13:31	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**330**	mg/L	5.0	5.0	1		03/14/17 11:21		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		03/15/17 12:43		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.8**	mg/L	1.0	0.50	1		03/14/17 12:00	16887-00-6	M1
Fluoride	**0.28**	mg/L	0.20	0.10	1		03/14/17 12:00	16984-48-8	
Sulfate	**68.5**	mg/L	5.0	2.5	5		03/14/17 12:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-2S **Lab ID: 60239431002** Collected: 03/08/17 15:45 Received: 03/10/17 03:45 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								
Barium	**155**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:01	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:01	7440-41-7	
Boron	**8150**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:01	7440-42-8	
Calcium	**266000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:01	7440-70-2	
Cobalt	**6.0**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:01	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:01	7439-92-1	
Lithium	**31.3**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:01	7439-93-2	
Molybdenum	**798**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:01	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:36	7440-36-0	
Arsenic	**1.1**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:36	7440-38-2	
Cadmium	**0.14J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:36	7440-43-9	
Chromium	**0.89J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:36	7440-47-3	B
Selenium	**0.088J**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:36	7782-49-2	
Thallium	**0.25J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1180**	mg/L	5.0	5.0	1		03/13/17 13:36		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/13/17 12:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**219**	mg/L	20.0	10.0	20		03/14/17 14:24	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.10	1		03/14/17 13:56	16984-48-8	
Sulfate	**206**	mg/L	20.0	10.0	20		03/14/17 14:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-3S **Lab ID: 60239431003** Collected: 03/08/17 15:43 Received: 03/10/17 03:45 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								
Barium	**169**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:04	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:04	7440-41-7	
Boron	**301**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:04	7440-42-8	
Calcium	**164000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:04	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:04	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:04	7439-92-1	
Lithium	**20.6**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:04	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:04	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.090J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:39	7440-36-0	
Arsenic	**0.52J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:39	7440-38-2	B
Cadmium	**0.080J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:39	7440-43-9	
Chromium	**1.6**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:39	7440-47-3	B
Selenium	**1.6**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:39	7782-49-2	
Thallium	**0.082J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:39	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**581**	mg/L	5.0	5.0	1		03/13/17 13:37		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		03/13/17 12:42		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**31.5**	mg/L	2.0	1.0	2		03/14/17 15:08	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.10	1		03/14/17 14:53	16984-48-8	
Sulfate	**37.2**	mg/L	2.0	1.0	2		03/14/17 15:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-4S **Lab ID: 60239431004** Collected: 03/08/17 14:37 Received: 03/10/17 03:45 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								
Barium	**252**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:06	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:06	7440-41-7	
Boron	**240**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:06	7440-42-8	
Calcium	**160000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:06	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:06	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:06	7439-92-1	
Lithium	**21.6**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:06	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:06	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.16J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:42	7440-36-0	
Arsenic	**0.62J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:42	7440-38-2	
Cadmium	**0.17J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:42	7440-43-9	
Chromium	**1.0J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:42	7440-47-3	B
Selenium	**5.0**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:42	7782-49-2	
Thallium	**0.047J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:42	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:10	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**592**	mg/L	5.0	5.0	1		03/13/17 13:37		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/13/17 12:31		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.1**	mg/L	1.0	0.50	1		03/14/17 15:36	16887-00-6	
Fluoride	**0.20**	mg/L	0.20	0.10	1		03/14/17 15:36	16984-48-8	
Sulfate	**40.8**	mg/L	5.0	2.5	5		03/14/17 15:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-5S **Lab ID: 60239431005** Collected: 03/09/17 09:03 Received: 03/10/17 03:45 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								
Barium	**68.8**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:08	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:08	7440-41-7	
Boron	**11100**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:08	7440-42-8	
Calcium	**271000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:08	7440-70-2	
Cobalt	**1.3J**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:08	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:08	7439-92-1	
Lithium	**53.0**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:08	7439-93-2	
Molybdenum	**714**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:08	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.11J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:52	7440-36-0	
Arsenic	**0.53J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:52	7440-38-2	B
Cadmium	**0.72**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:52	7440-43-9	
Chromium	**0.56J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:52	7440-47-3	B
Selenium	**0.13J**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:52	7782-49-2	
Thallium	**0.043J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:12	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1390**	mg/L	5.0	5.0	1		03/14/17 11:22		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.8**	Std. Units	0.10	0.10	1		03/13/17 14:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**26.1**	mg/L	2.0	1.0	2		03/14/17 16:48	16887-00-6	
Fluoride	**0.48**	mg/L	0.20	0.10	1		03/14/17 16:34	16984-48-8	
Sulfate	**713**	mg/L	50.0	25.0	50		03/14/17 17:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-6S **Lab ID: 60239431006** Collected: 03/09/17 09:40 Received: 03/10/17 03:45 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								
Barium	**52.1**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:15	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:15	7440-41-7	
Boron	**16200**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:15	7440-42-8	
Calcium	**343000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:15	7440-70-2	
Cobalt	**8.5**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:15	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:15	7439-92-1	
Lithium	**21.5**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:15	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:15	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:55	7440-36-0	
Arsenic	**0.61J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:55	7440-38-2	
Cadmium	**0.96**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:55	7440-43-9	
Chromium	**1.4**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:55	7440-47-3	B
Selenium	**<0.086**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:55	7782-49-2	
Thallium	**0.041J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:55	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:14	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1720**	mg/L	5.0	5.0	1		03/14/17 11:22		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/13/17 14:51		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.9**	mg/L	1.0	0.50	1		03/14/17 17:17	16887-00-6	
Fluoride	**0.13J**	mg/L	0.20	0.10	1		03/14/17 17:17	16984-48-8	
Sulfate	**1030**	mg/L	100	50.0	100		03/14/17 17:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-7S **Lab ID: 60239431007** Collected: 03/09/17 10:20 Received: 03/10/17 03:45 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								
Barium	**143**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:17	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:17	7440-41-7	
Boron	**2230**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:17	7440-42-8	
Calcium	**274000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:17	7440-70-2	
Cobalt	**2.4J**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:17	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:17	7439-92-1	
Lithium	**20.5**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:17	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:17	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.095J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 15:58	7440-36-0	
Arsenic	**0.42J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 15:58	7440-38-2	B
Cadmium	**0.35J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 15:58	7440-43-9	
Chromium	**0.90J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 15:58	7440-47-3	B
Selenium	**3.3**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 15:58	7782-49-2	
Thallium	**0.042J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 15:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1090**	mg/L	5.0	5.0	1		03/14/17 11:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/15/17 14:42		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**15.3**	mg/L	1.0	0.50	1		03/14/17 17:46	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.10	1		03/14/17 17:46	16984-48-8	
Sulfate	**443**	mg/L	50.0	25.0	50		03/14/17 18:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-8S **Lab ID: 60239431008** Collected: 03/09/17 11:00 Received: 03/10/17 03:45 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								
Barium	**107**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:19	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:19	7440-41-7	
Boron	**5880**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:19	7440-42-8	
Calcium	**180000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:19	7440-70-2	
Cobalt	**8.9**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:19	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:19	7439-92-1	
Lithium	**19.8**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:19	7439-93-2	
Molybdenum	**173**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:19	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:01	7440-36-0	
Arsenic	**0.75J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:01	7440-38-2	
Cadmium	**0.86**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:01	7440-43-9	
Chromium	**1.1**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:01	7440-47-3	B
Selenium	**0.30J**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:01	7782-49-2	
Thallium	**0.043J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**860**	mg/L	5.0	5.0	1		03/14/17 11:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		03/15/17 14:43		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**45.6**	mg/L	5.0	2.5	5		03/14/17 18:29	16887-00-6	
Fluoride	**0.79**	mg/L	0.20	0.10	1		03/14/17 18:15	16984-48-8	
Sulfate	**417**	mg/L	50.0	25.0	50		03/14/17 18:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-9S **Lab ID: 60239431009** Collected: 03/08/17 15:42 Received: 03/10/17 03:45 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								
Barium	**72.3**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:22	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:22	7440-41-7	
Boron	**1430**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:22	7440-42-8	
Calcium	**239000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:22	7440-70-2	
Cobalt	**9.3**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:22	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:22	7439-92-1	
Lithium	**48.1**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:22	7439-93-2	
Molybdenum	**4.2J**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:22	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.059J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:04	7440-36-0	
Arsenic	**0.94J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:04	7440-38-2	
Cadmium	**0.13J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:04	7440-43-9	
Chromium	**0.66J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:04	7440-47-3	B
Selenium	**0.14J**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:04	7782-49-2	
Thallium	**0.043J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1110**	mg/L	5.0	5.0	1		03/13/17 13:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		03/13/17 12:41		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**70.7**	mg/L	5.0	2.5	5		03/14/17 19:41	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.10	1		03/14/17 19:27	16984-48-8	
Sulfate	**282**	mg/L	20.0	10.0	20		03/14/17 19:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-BMW-1S **Lab ID: 60239431010** Collected: 03/08/17 12:40 Received: 03/10/17 03:45 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								
Barium	**151**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:24	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:24	7440-41-7	
Boron	**84.6J**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:24	7440-42-8	
Calcium	**162000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:24	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:24	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:24	7439-92-1	
Lithium	**4.4J**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:24	7439-93-2	
Molybdenum	**1.4J**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:24	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.076J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:07	7440-36-0	
Arsenic	**0.91J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:07	7440-38-2	
Cadmium	**0.12J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:07	7440-43-9	
Chromium	**0.47J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:07	7440-47-3	B
Selenium	**0.37J**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:07	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**532**	mg/L	5.0	5.0	1		03/13/17 13:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/13/17 12:10		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**9.7**	mg/L	1.0	0.50	1		03/14/17 20:10	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.10	1		03/14/17 20:10	16984-48-8	
Sulfate	**27.6**	mg/L	2.0	1.0	2		03/14/17 20:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-BMW-3S **Lab ID: 60239431011** Collected: 03/08/17 11:17 Received: 03/10/17 03:45 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								
Barium	**124**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:31	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:31	7440-41-7	
Boron	**78.5J**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:31	7440-42-8	B
Calcium	**134000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:31	7440-70-2	
Cobalt	**1.8J**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:31	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:31	7439-92-1	
Lithium	**6.0J**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:31	7439-93-2	
Molybdenum	**3.1J**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:31	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.042J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:26	7440-36-0	
Arsenic	**1.2**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:26	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:26	7440-43-9	
Chromium	**0.62J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:26	7440-47-3	B
Selenium	**<0.086**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:26	7782-49-2	
Thallium	**0.092J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:30	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**455**	mg/L	5.0	5.0	1		03/13/17 13:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		03/13/17 11:58		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.0**	mg/L	1.0	0.50	1		03/14/17 20:39	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.10	1		03/14/17 20:39	16984-48-8	
Sulfate	**26.1**	mg/L	2.0	1.0	2		03/14/17 20:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-DUP-1 **Lab ID: 60239431012** Collected: 03/08/17 08:00 Received: 03/10/17 03:45 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								
Barium	**264**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:33	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:33	7440-41-7	
Boron	**250**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:33	7440-42-8	
Calcium	**165000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:33	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:33	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:33	7439-92-1	
Lithium	**25.5**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:33	7439-93-2	
Molybdenum	**1.8J**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:33	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.15J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:29	7440-36-0	
Arsenic	**0.58J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:29	7440-38-2	
Cadmium	**0.16J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:29	7440-43-9	
Chromium	**0.62J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:29	7440-47-3	B
Selenium	**4.6**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:29	7782-49-2	
Thallium	**0.043J**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:29	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.051J**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**608**	mg/L	5.0	5.0	1		03/13/17 13:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.8**	Std. Units	0.10	0.10	1		03/13/17 11:17		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.2**	mg/L	1.0	0.50	1		03/14/17 21:08	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.10	1		03/14/17 21:08	16984-48-8	
Sulfate	**47.7**	mg/L	5.0	2.5	5		03/14/17 21:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-DUP-2 **Lab ID: 60239431013** Collected: 03/08/17 08:00 Received: 03/10/17 03:45 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								
Barium	**161**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:35	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:35	7440-41-7	
Boron	**271**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:35	7440-42-8	
Calcium	**157000**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:35	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:35	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:35	7439-92-1	
Lithium	**20.3**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:35	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:35	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.086J**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 16:32	7440-36-0	
Arsenic	**0.42J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 16:32	7440-38-2	
Cadmium	**0.076J**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 16:32	7440-43-9	
Chromium	**1.6**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 16:32	7440-47-3	B
Selenium	**1.5**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 16:32	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 16:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**0.050J**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:34	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**574**	mg/L	5.0	5.0	1		03/13/17 13:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		03/13/17 11:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**31.9**	mg/L	2.0	1.0	2		03/14/17 22:20	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.10	1		03/14/17 21:37	16984-48-8	
Sulfate	**37.4**	mg/L	2.0	1.0	2		03/14/17 22:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-FB-1 **Lab ID: 60239431014** Collected: 03/09/17 08:00 Received: 03/10/17 03:45 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								
Barium	**<0.91**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:42	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:42	7440-41-7	
Boron	**7.6J**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:42	7440-42-8	B
Calcium	**<36.0**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:42	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:42	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:42	7439-92-1	
Lithium	**<2.9**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:42	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:42	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.026**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 17:30	7440-36-0	
Arsenic	**0.057J**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 17:30	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 17:30	7440-43-9	
Chromium	**1.2**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 17:30	7440-47-3	B
Selenium	**<0.086**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 17:30	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 17:30	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**6.0**	mg/L	5.0	5.0	1		03/14/17 11:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.1**	Std. Units	0.10	0.10	1		03/13/17 14:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		03/14/17 22:34	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		03/14/17 22:34	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		03/14/17 22:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-FB-2 **Lab ID: 60239431015** Collected: 03/09/17 08:00 Received: 03/10/17 03:45 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								
Barium	**1.3J**	ug/L	5.0	0.91	1	03/14/17 13:00	03/22/17 18:44	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	03/14/17 13:00	03/22/17 18:44	7440-41-7	
Boron	**6.2J**	ug/L	100	3.5	1	03/14/17 13:00	03/22/17 18:44	7440-42-8	B
Calcium	**<36.0**	ug/L	100	36.0	1	03/14/17 13:00	03/22/17 18:44	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	03/14/17 13:00	03/22/17 18:44	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	03/14/17 13:00	03/22/17 18:44	7439-92-1	
Lithium	**<2.9**	ug/L	10.0	2.9	1	03/14/17 13:00	03/22/17 18:44	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	03/14/17 13:00	03/22/17 18:44	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.026**	ug/L	1.0	0.026	1	03/14/17 13:00	03/22/17 17:34	7440-36-0	
Arsenic	**<0.052**	ug/L	1.0	0.052	1	03/14/17 13:00	03/22/17 17:34	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	03/14/17 13:00	03/22/17 17:34	7440-43-9	
Chromium	**0.41J**	ug/L	1.0	0.054	1	03/14/17 13:00	03/22/17 17:34	7440-47-3	B
Selenium	**<0.086**	ug/L	1.0	0.086	1	03/14/17 13:00	03/22/17 17:34	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	03/14/17 13:00	03/22/17 17:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	03/15/17 09:30	03/15/17 12:38	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		03/14/17 14:44		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		03/13/17 14:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		03/14/17 22:49	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		03/14/17 22:49	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		03/14/17 22:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468825 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60239431001

METHOD BLANK: 1918996 Matrix: Water
Associated Lab Samples: 60239431001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	03/15/17 12:41	

LABORATORY CONTROL SAMPLE: 1918997

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918998 1918999

Parameter	Units	60239429001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.6	4.7	92	93	75-125	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1919000 1919001

Parameter	Units	60239431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.6	4.7	90	94	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468828 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

METHOD BLANK: 1919006 Matrix: Water
Associated Lab Samples: 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	03/15/17 11:57	

LABORATORY CONTROL SAMPLE: 1919007

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1919008 1919009

Parameter	Units	60239431002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.8	4.8	95	94	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468651 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010

METHOD BLANK: 1918411 Matrix: Water
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	03/22/17 17:21	
Beryllium	ug/L	<0.16	1.0	0.16	03/22/17 17:21	
Boron	ug/L	<3.5	100	3.5	03/22/17 17:21	
Calcium	ug/L	<36.0	100	36.0	03/22/17 17:21	
Cobalt	ug/L	<0.73	5.0	0.73	03/22/17 17:21	
Lead	ug/L	<2.4	5.0	2.4	03/22/17 17:21	
Lithium	ug/L	<2.9	10.0	2.9	03/22/17 17:21	
Molybdenum	ug/L	<1.3	20.0	1.3	03/22/17 17:21	

LABORATORY CONTROL SAMPLE: 1918412

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	1050	105	85-115	
Boron	ug/L	1000	993	99	85-115	
Calcium	ug/L	10000	10700	107	85-115	
Cobalt	ug/L	1000	1070	107	85-115	
Lead	ug/L	1000	1040	104	85-115	
Lithium	ug/L	1000	1040	104	85-115	
Molybdenum	ug/L	1000	1070	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918413 1918414

Parameter	Units	60239429001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	123	1000	1000	1170	1170	104	105	70-130	0	20	
Beryllium	ug/L	<0.16	1000	1000	1060	1060	106	106	70-130	0	20	
Boron	ug/L	325	1000	1000	1330	1350	100	102	70-130	1	20	
Calcium	ug/L	71600	10000	10000	81300	83200	97	117	70-130	2	20	
Cobalt	ug/L	<0.73	1000	1000	1030	1030	103	103	70-130	0	20	
Lead	ug/L	<2.4	1000	1000	1000	1000	100	100	70-130	0	20	
Lithium	ug/L	10.1	1000	1000	1060	1060	105	105	70-130	0	20	
Molybdenum	ug/L	35.7	1000	1000	1090	1090	106	106	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918415 1918416

Parameter	Units	60239431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	102	1000	1000	1160	1120	106	102	70-130	3	20	
Beryllium	ug/L	<0.16	1000	1000	1080	1040	108	104	70-130	4	20	
Boron	ug/L	394	1000	1000	1440	1400	104	101	70-130	2	20	
Calcium	ug/L	78200	10000	10000	90900	87900	127	98	70-130	3	20	
Cobalt	ug/L	1.1J	1000	1000	1070	1050	107	105	70-130	2	20	
Lead	ug/L	<2.4	1000	1000	1040	1020	104	102	70-130	2	20	
Lithium	ug/L	14.1	1000	1000	1080	1040	107	103	70-130	3	20	
Molybdenum	ug/L	75.0	1000	1000	1180	1160	110	108	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468654 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

METHOD BLANK: 1918431 Matrix: Water
Associated Lab Samples: 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	03/22/17 18:28	
Beryllium	ug/L	0.18J	1.0	0.16	03/22/17 18:28	
Boron	ug/L	13.6J	100	3.5	03/22/17 18:28	
Calcium	ug/L	<36.0	100	36.0	03/22/17 18:28	
Cobalt	ug/L	<0.73	5.0	0.73	03/22/17 18:28	
Lead	ug/L	<2.4	5.0	2.4	03/22/17 18:28	
Lithium	ug/L	<2.9	10.0	2.9	03/22/17 18:28	
Molybdenum	ug/L	<1.3	20.0	1.3	03/22/17 18:28	

LABORATORY CONTROL SAMPLE: 1918432

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	1030	103	85-115	
Boron	ug/L	1000	990	99	85-115	
Calcium	ug/L	10000	10600	106	85-115	
Cobalt	ug/L	1000	1060	106	85-115	
Lead	ug/L	1000	1030	103	85-115	
Lithium	ug/L	1000	1010	101	85-115	
Molybdenum	ug/L	1000	1060	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918433 1918434

Parameter	Units	60239561001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	196	1000	1000	1220	1220	102	102	70-130	0	20	
Beryllium	ug/L	<0.16	1000	1000	1040	1050	104	105	70-130	1	20	
Boron	ug/L	81.5J	1000	1000	1080	1090	100	101	70-130	1	20	
Calcium	ug/L	109000	10000	10000	114000	119000	49	103	70-130	5	20	M1
Cobalt	ug/L	1.5J	1000	1000	1020	1030	102	103	70-130	1	20	
Lead	ug/L	<2.4	1000	1000	1000	1010	100	101	70-130	1	20	
Lithium	ug/L	25.4	1000	1000	1060	1070	104	104	70-130	1	20	
Molybdenum	ug/L	3.0J	1000	1000	1060	1060	106	106	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

MATRIX SPIKE SAMPLE: 1918435

Parameter	Units	60239561002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	222	1000	1250	102	70-130	
Beryllium	ug/L	0.22J	1000	1050	105	70-130	
Boron	ug/L	95.2J	1000	1110	102	70-130	
Calcium	ug/L	127000	10000	135000	86	70-130	
Cobalt	ug/L	<0.73	1000	1040	104	70-130	
Lead	ug/L	<2.4	1000	1010	101	70-130	
Lithium	ug/L	30.5	1000	1080	105	70-130	
Molybdenum	ug/L	1.8J	1000	1080	108	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468653 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010

METHOD BLANK: 1918422 Matrix: Water
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	03/22/17 14:39	
Arsenic	ug/L	0.060J	1.0	0.052	03/22/17 14:39	
Cadmium	ug/L	<0.018	0.50	0.018	03/22/17 14:39	
Chromium	ug/L	0.27J	1.0	0.054	03/22/17 14:39	
Selenium	ug/L	<0.086	1.0	0.086	03/22/17 14:39	
Thallium	ug/L	<0.036	1.0	0.036	03/22/17 14:39	

LABORATORY CONTROL SAMPLE: 1918423

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.0	100	85-115	
Arsenic	ug/L	40	40.7	102	85-115	
Cadmium	ug/L	40	40.7	102	85-115	
Chromium	ug/L	40	40.5	101	85-115	
Selenium	ug/L	40	41.6	104	85-115	
Thallium	ug/L	40	36.6	91	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918424 1918425

Parameter	Units	60239429001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.041J	40	40	41.3	41.1	103	103	70-130	0	20	
Arsenic	ug/L	1.1	40	40	42.2	42.1	103	103	70-130	0	20	
Cadmium	ug/L	<0.018	40	40	40.5	40.8	101	102	70-130	1	20	
Chromium	ug/L	1.5	40	40	41.0	42.0	99	101	70-130	2	20	
Selenium	ug/L	<0.086	40	40	40.5	39.2	101	98	70-130	3	20	
Thallium	ug/L	0.17J	40	40	37.8	38.6	94	96	70-130	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918426 1918427

Parameter	Units	60239431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.37J	40	40	41.3	41.3	102	102	70-130	0	20	
Arsenic	ug/L	1.8	40	40	42.8	42.7	102	102	70-130	0	20	
Cadmium	ug/L	0.047J	40	40	40.7	40.2	102	100	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918426 1918427

Parameter	Units	60239431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	ug/L	0.52J	40	40	41.3	41.0	102	101	70-130	1	20	
Selenium	ug/L	1.4	40	40	40.8	40.9	98	99	70-130	0	20	
Thallium	ug/L	<0.036	40	40	38.0	38.4	95	96	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468655 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

METHOD BLANK: 1918437 Matrix: Water
Associated Lab Samples: 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	03/22/17 16:19	
Arsenic	ug/L	<0.052	1.0	0.052	03/22/17 16:19	
Cadmium	ug/L	<0.018	0.50	0.018	03/22/17 16:19	
Chromium	ug/L	0.17J	1.0	0.054	03/22/17 16:19	
Selenium	ug/L	<0.086	1.0	0.086	03/22/17 16:19	
Thallium	ug/L	<0.036	1.0	0.036	03/22/17 16:19	

LABORATORY CONTROL SAMPLE: 1918438

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.2	100	85-115	
Arsenic	ug/L	40	40.8	102	85-115	
Cadmium	ug/L	40	41.2	103	85-115	
Chromium	ug/L	40	40.2	101	85-115	
Selenium	ug/L	40	41.5	104	85-115	
Thallium	ug/L	40	36.7	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1918439 1918440

Parameter	Units	60239561001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.17J	40	40	41.0	41.2	102	103	70-130	1	20	
Arsenic	ug/L	0.46J	40	40	41.1	41.3	102	102	70-130	1	20	
Cadmium	ug/L	0.031J	40	40	40.8	40.7	102	102	70-130	0	20	
Chromium	ug/L	1.5	40	40	42.4	42.2	102	102	70-130	0	20	
Selenium	ug/L	0.56J	40	40	41.0	41.1	101	101	70-130	0	20	
Thallium	ug/L	0.037J	40	40	38.0	38.3	95	96	70-130	1	20	

MATRIX SPIKE SAMPLE: 1918441

Parameter	Units	60239561002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.062J	40	40.8	102	70-130	
Arsenic	ug/L	6.0	40	46.2	100	70-130	
Cadmium	ug/L	<0.018	40	40.6	102	70-130	
Chromium	ug/L	1.6	40	42.6	103	70-130	
Selenium	ug/L	<0.086	40	39.0	97	70-130	
Thallium	ug/L	0.24J	40	38.2	95	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468478 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60239431002, 60239431003, 60239431004, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013

METHOD BLANK: 1917978 Matrix: Water
Associated Lab Samples: 60239431002, 60239431003, 60239431004, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	03/13/17 13:31	

LABORATORY CONTROL SAMPLE: 1917979

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	985	99	80-120	

SAMPLE DUPLICATE: 1917980

Parameter	Units	60239532001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	893	956	7	10	

SAMPLE DUPLICATE: 1917981

Parameter	Units	60239431003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	581	576	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468641 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60239431001, 60239431005, 60239431006, 60239431007, 60239431008, 60239431014

METHOD BLANK: 1918378 Matrix: Water
Associated Lab Samples: 60239431001, 60239431005, 60239431006, 60239431007, 60239431008, 60239431014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	03/14/17 11:13	

LABORATORY CONTROL SAMPLE: 1918379

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	965	96	80-120	

SAMPLE DUPLICATE: 1918380

Parameter	Units	60239429001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	314	312	1	10	

SAMPLE DUPLICATE: 1918381

Parameter	Units	60239431001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	330	340	3	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468693 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60239431015

METHOD BLANK: 1918674 Matrix: Water
Associated Lab Samples: 60239431015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	03/14/17 14:41	

LABORATORY CONTROL SAMPLE: 1918675

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

SAMPLE DUPLICATE: 1918676

Parameter	Units	60239456001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8800	8100	8	10	

SAMPLE DUPLICATE: 1918688

Parameter	Units	60239208016 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	828	839	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468401
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60239431012, 60239431013

SAMPLE DUPLICATE: 1917824

Parameter	Units	60239186012 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	6.9	9	5	D6,H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468451 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60239431004, 60239431010, 60239431011

SAMPLE DUPLICATE: 1917909

Parameter	Units	60239294001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.1	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468452 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60239431002, 60239431003, 60239431009, 60239431014, 60239431015

SAMPLE DUPLICATE: 1917910

Parameter	Units	60239346001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	6.8	3	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468453 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60239431005, 60239431006

SAMPLE DUPLICATE: 1917912

Parameter	Units	60239429001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468569 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60239431001, 60239431007, 60239431008

SAMPLE DUPLICATE: 1918152

Parameter	Units	60239431001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

SAMPLE DUPLICATE: 1918153

Parameter	Units	60239561001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.8	7.0	3	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 468378 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

METHOD BLANK: 1917760 Matrix: Water
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	03/14/17 09:33	
Fluoride	mg/L	<0.10	0.20	0.10	03/14/17 09:33	
Sulfate	mg/L	<0.50	1.0	0.50	03/14/17 09:33	

LABORATORY CONTROL SAMPLE: 1917761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	105	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1917762 1917763

Parameter	Units	60239431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.8	5	5	24.9	25.2	123	128	80-120	1	15	M1
Fluoride	mg/L	0.28	2.5	2.5	3.0	3.1	109	114	80-120	4	15	
Sulfate	mg/L	68.5	25	25	96.9	95.9	114	110	80-120	1	15	

MATRIX SPIKE SAMPLE: 1917764

Parameter	Units	60239431002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	219	100	338	119	80-120	
Fluoride	mg/L	0.38	2.5	3.1	107	80-120	
Sulfate	mg/L	206	100	317	110	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-1S **Lab ID: 60239431001** Collected: 03/09/17 13:25 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.409 ± 0.378 (0.550) C:NA T:99%**	pCi/L	03/31/17 20:35	13982-63-3	
Radium-228	EPA 904.0	**0.293 ± 0.320 (0.665) C:73% T:89%**	pCi/L	03/30/17 11:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-2S **Lab ID: 60239431002** Collected: 03/08/17 15:45 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0570 ± 0.296 (0.613) C:NA T:91%**	pCi/L	03/31/17 20:35	13982-63-3	
Radium-228	EPA 904.0	**0.869 ± 0.437 (0.742) C:70% T:78%**	pCi/L	03/30/17 11:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-3S **Lab ID: 60239431003** Collected: 03/08/17 15:43 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0553 ± 0.325 (0.664) C:NA T:92%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**-0.0692 ± 0.354 (0.842) C:70% T:82%**	pCi/L	03/30/17 11:15	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-4S **Lab ID: 60239431004** Collected: 03/08/17 14:37 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.706 ± 0.446 (0.504) C:NA T:94%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**0.400 ± 0.331 (0.655) C:72% T:88%**	pCi/L	03/30/17 11:15	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-5S **Lab ID: 60239431005** Collected: 03/09/17 09:03 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.218 ± 0.371 (0.654) C:NA T:97%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**0.305 ± 0.332 (0.693) C:75% T:92%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-6S **Lab ID: 60239431006** Collected: 03/09/17 09:40 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0532 ± 0.243 (0.494) C:NA T:98%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**-0.111 ± 0.339 (0.816) C:71% T:83%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-7S **Lab ID: 60239431007** Collected: 03/09/17 10:20 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.454 ± 0.419 (0.610) C:NA T:94%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**1.15 ± 0.513 (0.845) C:75% T:79%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-8S **Lab ID: 60239431008** Collected: 03/09/17 11:00 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.171 ± 0.297 (0.530) C:NA T:94%**	pCi/L	03/31/17 20:54	13982-63-3	
Radium-228	EPA 904.0	**0.231 ± 0.367 (0.797) C:75% T:81%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-9S **Lab ID: 60239431009** Collected: 03/08/17 15:42 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.205 ± 0.285 (0.476) C:NA T:103%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**0.457 ± 0.382 (0.764) C:72% T:88%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-BMW-1S **Lab ID: 60239431010** Collected: 03/08/17 12:40 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.112 ± 0.256 (0.413) C:NA T:94%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**0.295 ± 0.370 (0.785) C:71% T:86%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-BMW-3S **Lab ID: 60239431011** Collected: 03/08/17 11:17 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.217 ± 0.262 (0.399) C:NA T:94%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**0.335 ± 0.399 (0.840) C:68% T:80%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-DUP-1 **Lab ID: 60239431012** Collected: 03/08/17 08:00 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0552 ± 0.252 (0.406) C:NA T:93%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**-0.0501 ± 0.315 (0.745) C:79% T:82%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-DUP-2 **Lab ID: 60239431013** Collected: 03/08/17 08:00 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.049 ± 0.224 (0.455) C:NA T:102%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**0.287 ± 0.320 (0.670) C:74% T:91%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-FB-1 **Lab ID: 60239431014** Collected: 03/09/17 08:00 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0576 ± 0.299 (0.621) C:NA T:92%**	pCi/L	03/31/17 21:18	13982-63-3	
Radium-228	EPA 904.0	**0.137 ± 0.357 (0.799) C:76% T:72%**	pCi/L	03/30/17 14:52	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-FB-2 **Lab ID: 60239431015** Collected: 03/09/17 08:00 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0563 ± 0.257 (0.414) C:NA T:95%**	pCi/L	03/31/17 21:45	13982-63-3	
Radium-228	EPA 904.0	**0.517 ± 0.433 (0.870) C:74% T:74%**	pCi/L	03/30/17 14:53	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-1S MS **Lab ID: 60239431016** Collected: 03/09/17 13:25 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**91.09%REC ± NA (NA)**	pCi/L	04/04/17 20:45	13982-63-3	
Radium-228	EPA 904.0	**135.97 %REC ± NA (NA) C:NA T:NA**	pCi/L	03/30/17 11:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Sample: S-LMW-1S MSD **Lab ID: 60239431017** Collected: 03/09/17 13:25 Received: 03/10/17 03:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**88.07%REC 3.37RPD ± NA (NA)**	pCi/L	03/31/17 21:45	13982-63-3	
Radium-228	EPA 904.0	**121.72 %REC 11.06 RPD ± NA (NA) C:NA T:NA**	pCi/L	03/30/17 11:15	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 252841 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015, 60239431016, 60239431017

METHOD BLANK: 1243919 Matrix: Water
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015, 60239431016, 60239431017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.114 ± 0.317 (0.615) C:NA T:96%	pCi/L	03/31/17 20:35	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

QC Batch: 252843 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015, 60239431016, 60239431017

METHOD BLANK: 1243920 Matrix: Water
Associated Lab Samples: 60239431001, 60239431002, 60239431003, 60239431004, 60239431005, 60239431006, 60239431007, 60239431008, 60239431009, 60239431010, 60239431011, 60239431012, 60239431013, 60239431014, 60239431015, 60239431016, 60239431017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.287 ± 0.291 (0.594) C:67% T:92%	pCi/L	03/30/17 11:14	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60239431001	**S-LMW-1S**	EPA 200.7	468651	EPA 200.7	468726
60239431002	**S-LMW-2S**	EPA 200.7	468651	EPA 200.7	468726
60239431003	**S-LMW-3S**	EPA 200.7	468651	EPA 200.7	468726
60239431004	**S-LMW-4S**	EPA 200.7	468651	EPA 200.7	468726
60239431005	**S-LMW-5S**	EPA 200.7	468651	EPA 200.7	468726
60239431006	**S-LMW-6S**	EPA 200.7	468651	EPA 200.7	468726
60239431007	**S-LMW-7S**	EPA 200.7	468651	EPA 200.7	468726
60239431008	**S-LMW-8S**	EPA 200.7	468651	EPA 200.7	468726
60239431009	**S-LMW-9S**	EPA 200.7	468651	EPA 200.7	468726
60239431010	**S-BMW-1S**	EPA 200.7	468651	EPA 200.7	468726
60239431011	**S-BMW-3S**	EPA 200.7	468654	EPA 200.7	468728
60239431012	**S-LMW-DUP-1**	EPA 200.7	468654	EPA 200.7	468728
60239431013	**S-LMW-DUP-2**	EPA 200.7	468654	EPA 200.7	468728
60239431014	**S-LMW-FB-1**	EPA 200.7	468654	EPA 200.7	468728
60239431015	**S-LMW-FB-2**	EPA 200.7	468654	EPA 200.7	468728
60239431001	**S-LMW-1S**	EPA 200.8	468653	EPA 200.8	468727
60239431002	**S-LMW-2S**	EPA 200.8	468653	EPA 200.8	468727
60239431003	**S-LMW-3S**	EPA 200.8	468653	EPA 200.8	468727
60239431004	**S-LMW-4S**	EPA 200.8	468653	EPA 200.8	468727
60239431005	**S-LMW-5S**	EPA 200.8	468653	EPA 200.8	468727
60239431006	**S-LMW-6S**	EPA 200.8	468653	EPA 200.8	468727
60239431007	**S-LMW-7S**	EPA 200.8	468653	EPA 200.8	468727
60239431008	**S-LMW-8S**	EPA 200.8	468653	EPA 200.8	468727
60239431009	**S-LMW-9S**	EPA 200.8	468653	EPA 200.8	468727
60239431010	**S-BMW-1S**	EPA 200.8	468653	EPA 200.8	468727
60239431011	**S-BMW-3S**	EPA 200.8	468655	EPA 200.8	468730
60239431012	**S-LMW-DUP-1**	EPA 200.8	468655	EPA 200.8	468730
60239431013	**S-LMW-DUP-2**	EPA 200.8	468655	EPA 200.8	468730
60239431014	**S-LMW-FB-1**	EPA 200.8	468655	EPA 200.8	468730
60239431015	**S-LMW-FB-2**	EPA 200.8	468655	EPA 200.8	468730
60239431001	**S-LMW-1S**	EPA 7470	468825	EPA 7470	468843
60239431002	**S-LMW-2S**	EPA 7470	468828	EPA 7470	468842
60239431003	**S-LMW-3S**	EPA 7470	468828	EPA 7470	468842
60239431004	**S-LMW-4S**	EPA 7470	468828	EPA 7470	468842
60239431005	**S-LMW-5S**	EPA 7470	468828	EPA 7470	468842
60239431006	**S-LMW-6S**	EPA 7470	468828	EPA 7470	468842
60239431007	**S-LMW-7S**	EPA 7470	468828	EPA 7470	468842
60239431008	**S-LMW-8S**	EPA 7470	468828	EPA 7470	468842
60239431009	**S-LMW-9S**	EPA 7470	468828	EPA 7470	468842
60239431010	**S-BMW-1S**	EPA 7470	468828	EPA 7470	468842
60239431011	**S-BMW-3S**	EPA 7470	468828	EPA 7470	468842
60239431012	**S-LMW-DUP-1**	EPA 7470	468828	EPA 7470	468842
60239431013	**S-LMW-DUP-2**	EPA 7470	468828	EPA 7470	468842
60239431014	**S-LMW-FB-1**	EPA 7470	468828	EPA 7470	468842
60239431015	**S-LMW-FB-2**	EPA 7470	468828	EPA 7470	468842
60239431001	**S-LMW-1S**	EPA 903.1	252841		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60239431002	S-LMW-2S	EPA 903.1	252841		
60239431003	S-LMW-3S	EPA 903.1	252841		
60239431004	S-LMW-4S	EPA 903.1	252841		
60239431005	S-LMW-5S	EPA 903.1	252841		
60239431006	S-LMW-6S	EPA 903.1	252841		
60239431007	S-LMW-7S	EPA 903.1	252841		
60239431008	S-LMW-8S	EPA 903.1	252841		
60239431009	S-LMW-9S	EPA 903.1	252841		
60239431010	S-BMW-1S	EPA 903.1	252841		
60239431011	S-BMW-3S	EPA 903.1	252841		
60239431012	S-LMW-DUP-1	EPA 903.1	252841		
60239431013	S-LMW-DUP-2	EPA 903.1	252841		
60239431014	S-LMW-FB-1	EPA 903.1	252841		
60239431015	S-LMW-FB-2	EPA 903.1	252841		
60239431016	S-LMW-1S MS	EPA 903.1	252841		
60239431017	S-LMW-1S MSD	EPA 903.1	252841		
60239431001	S-LMW-1S	EPA 904.0	252843		
60239431002	S-LMW-2S	EPA 904.0	252843		
60239431003	S-LMW-3S	EPA 904.0	252843		
60239431004	S-LMW-4S	EPA 904.0	252843		
60239431005	S-LMW-5S	EPA 904.0	252843		
60239431006	S-LMW-6S	EPA 904.0	252843		
60239431007	S-LMW-7S	EPA 904.0	252843		
60239431008	S-LMW-8S	EPA 904.0	252843		
60239431009	S-LMW-9S	EPA 904.0	252843		
60239431010	S-BMW-1S	EPA 904.0	252843		
60239431011	S-BMW-3S	EPA 904.0	252843		
60239431012	S-LMW-DUP-1	EPA 904.0	252843		
60239431013	S-LMW-DUP-2	EPA 904.0	252843		
60239431014	S-LMW-FB-1	EPA 904.0	252843		
60239431015	S-LMW-FB-2	EPA 904.0	252843		
60239431016	S-LMW-1S MS	EPA 904.0	252843		
60239431017	S-LMW-1S MSD	EPA 904.0	252843		
60239431001	S-LMW-1S	SM 2540C	468641		
60239431002	S-LMW-2S	SM 2540C	468478		
60239431003	S-LMW-3S	SM 2540C	468478		
60239431004	S-LMW-4S	SM 2540C	468478		
60239431005	S-LMW-5S	SM 2540C	468641		
60239431006	S-LMW-6S	SM 2540C	468641		
60239431007	S-LMW-7S	SM 2540C	468641		
60239431008	S-LMW-8S	SM 2540C	468641		
60239431009	S-LMW-9S	SM 2540C	468478		
60239431010	S-BMW-1S	SM 2540C	468478		
60239431011	S-BMW-3S	SM 2540C	468478		
60239431012	S-LMW-DUP-1	SM 2540C	468478		
60239431013	S-LMW-DUP-2	SM 2540C	468478		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60239431

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60239431014	**S-LMW-FB-1**	SM 2540C	468641		
60239431015	**S-LMW-FB-2**	SM 2540C	468693		
60239431001	**S-LMW-1S**	SM 4500-H+B	468569		
60239431002	**S-LMW-2S**	SM 4500-H+B	468452		
60239431003	**S-LMW-3S**	SM 4500-H+B	468452		
60239431004	**S-LMW-4S**	SM 4500-H+B	468451		
60239431005	**S-LMW-5S**	SM 4500-H+B	468453		
60239431006	**S-LMW-6S**	SM 4500-H+B	468453		
60239431007	**S-LMW-7S**	SM 4500-H+B	468569		
60239431008	**S-LMW-8S**	SM 4500-H+B	468569		
60239431009	**S-LMW-9S**	SM 4500-H+B	468452		
60239431010	**S-BMW-1S**	SM 4500-H+B	468451		
60239431011	**S-BMW-3S**	SM 4500-H+B	468451		
60239431012	**S-LMW-DUP-1**	SM 4500-H+B	468401		
60239431013	**S-LMW-DUP-2**	SM 4500-H+B	468401		
60239431014	**S-LMW-FB-1**	SM 4500-H+B	468452		
60239431015	**S-LMW-FB-2**	SM 4500-H+B	468452		
60239431001	**S-LMW-1S**	EPA 300.0	468378		
60239431002	**S-LMW-2S**	EPA 300.0	468378		
60239431003	**S-LMW-3S**	EPA 300.0	468378		
60239431004	**S-LMW-4S**	EPA 300.0	468378		
60239431005	**S-LMW-5S**	EPA 300.0	468378		
60239431006	**S-LMW-6S**	EPA 300.0	468378		
60239431007	**S-LMW-7S**	EPA 300.0	468378		
60239431008	**S-LMW-8S**	EPA 300.0	468378		
60239431009	**S-LMW-9S**	EPA 300.0	468378		
60239431010	**S-BMW-1S**	EPA 300.0	468378		
60239431011	**S-BMW-3S**	EPA 300.0	468378		
60239431012	**S-LMW-DUP-1**	EPA 300.0	468378		
60239431013	**S-LMW-DUP-2**	EPA 300.0	468378		
60239431014	**S-LMW-FB-1**	EPA 300.0	468378		
60239431015	**S-LMW-FB-2**	EPA 300.0	468378		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60239431

60239431

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-266 (CF +1.5) / T-239 (CF +0.9) **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 0.3/12.4 **Corr. Factor** CF +1.5 CF +0.9 **Corrected** 1.8/14.1/13.9

Date and initials of person examining contents: ~ 3/10/17

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	pH
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	
Cyanide water sample checks: ☐ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 Check 3/10/17

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 2

Section A — Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B — Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60239431
1	S-LMW-1S	WT	G			3/9/17	1325		12	3		9							3	3	3	3	6		3BP3N 001 2BP2U 6BP1N
2	S-LMW-2S	WT	G			3/3/17	1545		4	1		3							1	1	1	1	2		1BP3N 002 1BP2U 2BP1N
3	S-LMW-3S	WT	G				1343		1	1		1							1	1	1	1	1		003
4	S-LMW-4S	WT	G				1432																		004
5	S-LMW-5S	WT	G			3/9/17	903																		005
6	S-LMW-6S	WT	G				940																		006
7	S-LMW-7S	WT	G				1020																		007
8	S-LMW-8S	WT	G				1100																		008
9	S-LMW-9S	WT	G			3/3/17	1542																		009
10	S-BMW-1S	WT	G				1240																		010
11	S-BMW-3S	WT	G				1117																		011
12	S-LMW-DUP-1	WT	G				—																		012

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Sydney Isom PACE	3/9/17	1430	[illegible] PACE	3/9/17	1634	1.8	Y	Y	Y
	[illegible] PACE	3-9-17	1700	[illegible] PACE	3/10/17	0345	14.1	Y		
							13.9	Y		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JEFF INGRAM

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/17

*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
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:	820 South Main Street, Suite 100 St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		60259431
1	S-LMW-DUP-2	WT	G			3/6/17	-		4	1		3							1	1	1	1	2		1BPSN 1BPAN 2BPIN 013
2	S-LMW-FB-1	WT	G			3/9/17			1	1		1							1	1	1	1	1		014
3	S-LMW-FB-2	WT	G			↓			1	1		1							1	1	1	1	1		015
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl		3/9/17	1630		3/9/17	1630
		3/9/17	1700		3/10/17	0345

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 3/9/17

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

April 26, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on April 06, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60241394001	**S-BMW-3S**	Water	04/05/17 10:53	04/06/17 03:50

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60241394001	**S-BMW-3S**	EPA 200.7	ZBM	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Sample: S-BMW-3S **Lab ID: 60241394001** Collected: 04/05/17 10:53 Received: 04/06/17 03:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**118**	ug/L	5.0	0.91	1	04/10/17 12:00	04/13/17 13:13	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	04/10/17 12:00	04/13/17 13:13	7440-41-7	
Boron	**68.8J**	ug/L	100	3.5	1	04/10/17 12:00	04/13/17 13:13	7440-42-8	
Calcium	**122000**	ug/L	100	36.0	1	04/10/17 12:00	04/13/17 13:13	7440-70-2	
Cobalt	**1.9J**	ug/L	5.0	0.73	1	04/10/17 12:00	04/13/17 13:13	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	04/10/17 12:00	04/13/17 13:13	7439-92-1	
Lithium	**8.7J**	ug/L	10.0	2.9	1	04/10/17 12:00	04/13/17 13:13	7439-93-2	
Molybdenum	**4.8J**	ug/L	20.0	1.3	1	04/10/17 12:00	04/13/17 13:13	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.033J**	ug/L	1.0	0.026	1	04/07/17 10:40	04/10/17 12:41	7440-36-0	
Arsenic	**0.89J**	ug/L	1.0	0.052	1	04/07/17 10:40	04/10/17 12:41	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/07/17 10:40	04/10/17 12:41	7440-43-9	
Chromium	**0.32J**	ug/L	1.0	0.054	1	04/07/17 10:40	04/10/17 12:41	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	04/07/17 10:40	04/11/17 13:17	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/07/17 10:40	04/10/17 12:41	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	04/06/17 15:30	04/07/17 10:29	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**447**	mg/L	5.0	5.0	1		04/06/17 15:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.7**	Std. Units	0.10	0.10	1		04/13/17 13:07		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10**	mg/L	1.0	0.50	1		04/07/17 16:28	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	0.10	1		04/07/17 16:28	16984-48-8	
Sulfate	**27.6**	mg/L	2.0	1.0	2		04/07/17 16:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 471728
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Associated Lab Samples: 60241394001

METHOD BLANK: 1931494 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	04/07/17 10:14	

LABORATORY CONTROL SAMPLE: 1931495

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931496 1931497

Parameter	Units	60241393001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.9	4.9	98	98	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 472060
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60241394001

METHOD BLANK: 1933194 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	04/13/17 12:34	
Beryllium	ug/L	<0.16	1.0	0.16	04/13/17 12:34	
Boron	ug/L	<3.5	100	3.5	04/13/17 12:34	
Calcium	ug/L	<36.0	100	36.0	04/13/17 12:34	
Cobalt	ug/L	<0.73	5.0	0.73	04/13/17 12:34	
Lead	ug/L	<2.4	5.0	2.4	04/13/17 12:34	
Lithium	ug/L	<2.9	10.0	2.9	04/13/17 12:34	
Molybdenum	ug/L	<1.3	20.0	1.3	04/13/17 12:34	

LABORATORY CONTROL SAMPLE: 1933195

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	1040	104	85-115	
Boron	ug/L	1000	1040	104	85-115	
Calcium	ug/L	10000	9700	97	85-115	
Cobalt	ug/L	1000	1080	108	85-115	
Lead	ug/L	1000	1020	102	85-115	
Lithium	ug/L	1000	1090	109	85-115	
Molybdenum	ug/L	1000	1110	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1933196 1933197

Parameter	Units	60241357001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	23.0	1000	1000	1060	1060	104	104	70-130	1	20	
Beryllium	ug/L	ND	1000	1000	1030	1040	103	103	70-130	1	20	
Boron	ug/L	3120	1000	1000	4120	4150	101	103	70-130	1	20	
Calcium	ug/L	30200	10000	10000	39000	38800	88	85	70-130	1	20	
Cobalt	ug/L	ND	1000	1000	1010	1020	101	102	70-130	1	20	
Lead	ug/L	ND	1000	1000	928	940	93	94	70-130	1	20	
Lithium	ug/L	17.7	1000	1000	1110	1120	109	111	70-130	1	20	
Molybdenum	ug/L	116	1000	1000	1200	1220	108	110	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

MATRIX SPIKE SAMPLE: 1933198

Parameter	Units	60241525001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	124	1000	1170	104	70-130	
Beryllium	ug/L	ND	1000	1040	104	70-130	
Boron	ug/L	166	1000	1230	107	70-130	
Calcium	ug/L	91500	10000	101000	94	70-130	
Cobalt	ug/L	ND	1000	1060	105	70-130	
Lead	ug/L	121	1000	1110	99	70-130	
Lithium	ug/L	17.2	1000	1120	110	70-130	
Molybdenum	ug/L	29.9	1000	1140	111	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 471820 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60241394001

METHOD BLANK: 1931891 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	04/10/17 10:38	
Arsenic	ug/L	<0.052	1.0	0.052	04/10/17 10:38	
Cadmium	ug/L	<0.018	0.50	0.018	04/10/17 10:38	
Chromium	ug/L	<0.054	1.0	0.054	04/10/17 10:38	
Selenium	ug/L	<0.086	1.0	0.086	04/11/17 12:15	
Thallium	ug/L	<0.036	1.0	0.036	04/10/17 10:38	

LABORATORY CONTROL SAMPLE: 1931892

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.2	100	85-115	
Arsenic	ug/L	40	40.4	101	85-115	
Cadmium	ug/L	40	40.4	101	85-115	
Chromium	ug/L	40	41.4	103	85-115	
Selenium	ug/L	40	40.9	102	85-115	
Thallium	ug/L	40	37.5	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931893 1931894

Parameter	Units	7563209001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	40	40	41.7	41.5	103	103	70-130	0	20	
Arsenic	ug/L	1.6	40	40	41.8	42.4	100	102	70-130	2	20	
Cadmium	ug/L	ND	40	40	39.3	38.7	98	97	70-130	1	20	
Chromium	ug/L	2.0	40	40	42.5	42.3	101	101	70-130	0	20	
Selenium	ug/L	ND	40	40	35.6	36.2	88	90	70-130	1	20	
Thallium	ug/L	ND	40	40	37.6	37.8	94	94	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931895 1931896

Parameter	Units	7563209002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	40	40	42.3	42.2	104	104	70-130	0	20	
Arsenic	ug/L	1.6	40	40	42.4	42.5	102	102	70-130	0	20	
Cadmium	ug/L	ND	40	40	39.8	39.6	99	99	70-130	1	20	
Chromium	ug/L	2.9	40	40	43.6	43.7	102	102	70-130	0	20	
Selenium	ug/L	ND	40	40	35.9	33.8	89	84	70-130	6	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931895 1931896

Parameter	Units	7563209002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Thallium	ug/L	ND	40	40	38.2	38.1	95	95	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931897 1931898

Parameter	Units	7563209003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	40	40	42.4	42.3	105	105	70-130	0	20	
Arsenic	ug/L	1.4	40	40	42.7	42.6	103	103	70-130	0	20	
Cadmium	ug/L	ND	40	40	39.1	39.3	98	98	70-130	1	20	
Chromium	ug/L	6.9	40	40	47.7	48.1	102	103	70-130	1	20	
Selenium	ug/L	ND	40	40	36.0	34.9	88	86	70-130	3	20	
Thallium	ug/L	ND	40	40	38.2	38.5	95	96	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931899 1931900

Parameter	Units	7563209004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	40	40	41.9	41.8	104	104	70-130	0	20	
Arsenic	ug/L	1.1	40	40	41.8	42.1	102	103	70-130	1	20	
Cadmium	ug/L	ND	40	40	39.4	38.9	98	97	70-130	1	20	
Chromium	ug/L	4.5	40	40	44.5	45.3	100	102	70-130	2	20	
Selenium	ug/L	ND	40	40	31.2	32.3	77	79	70-130	3	20	
Thallium	ug/L	ND	40	40	38.1	38.0	95	95	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 471744
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60241394001

METHOD BLANK: 1931522
Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/06/17 15:35	

LABORATORY CONTROL SAMPLE: 1931523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	969	97	80-120	

SAMPLE DUPLICATE: 1931524

Parameter	Units	60241391001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8970	9970	11	10	D6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 472464
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60241394001

SAMPLE DUPLICATE: 1934648

Parameter	Units	60241544001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.2	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 471826
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60241394001

METHOD BLANK: 1931915 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	04/07/17 08:23	
Fluoride	mg/L	<0.10	0.20	0.10	04/07/17 08:23	
Sulfate	mg/L	<0.50	1.0	0.50	04/07/17 08:23	

LABORATORY CONTROL SAMPLE: 1931916

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931917 1931918

Parameter	Units	60241481001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1320	1000	1000	2380	2340	106	101	80-120	2	15	
Fluoride	mg/L	ND	500	500	551	542	105	103	80-120	2	15	
Sulfate	mg/L	ND	1000	1000	1100	1110	98	99	80-120	1	15	

MATRIX SPIKE SAMPLE: 1931980

Parameter	Units	60241472004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2730	1000	3860	113	80-120	
Fluoride	mg/L	ND	500	533	107	80-120	
Sulfate	mg/L	3890	1000	4940	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Sample: S-BMW-3S **Lab ID: 60241394001** Collected: 04/05/17 10:53 Received: 04/06/17 03:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.548 ± 0.513 (0.727) C:NA T:91%**	pCi/L	04/24/17 22:21	13982-63-3	
Radium-228	EPA 904.0	**0.316 ± 0.318 (0.659) C:83% T:87%**	pCi/L	04/24/17 16:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 255654 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60241394001

METHOD BLANK: 1259160 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.321 ± 0.447 (0.746) C:NA T:88%	pCi/L	04/24/17 22:04	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

QC Batch: 255790 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60241394001

METHOD BLANK: 1259874 Matrix: Water
Associated Lab Samples: 60241394001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.408 ± 0.295 (0.566) C:85% T:82%	pCi/L	04/24/17 16:37	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

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.

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.

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.

LABORATORIES

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

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR - FLY
Pace Project No.: 60241394

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60241394001	**S-BMW-3S**	EPA 200.7	472060	EPA 200.7	472122
60241394001	**S-BMW-3S**	EPA 200.8	471820	EPA 200.8	471945
60241394001	**S-BMW-3S**	EPA 7470	471728	EPA 7470	471775
60241394001	**S-BMW-3S**	EPA 903.1	255654		
60241394001	**S-BMW-3S**	EPA 904.0	255790		
60241394001	**S-BMW-3S**	SM 2540C	471744		
60241394001	**S-BMW-3S**	SM 4500-H+B	472464		
60241394001	**S-BMW-3S**	EPA 300.0	471826		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60241394

60241394

JLS

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: CF +1.5 T-266 / CF +0.9 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 0.9/1.9 **Corr. Factor** CF +1.5 CF +0.9 **Corrected** 2.4/3.4

Date and initials of person examining contents: 4/6/17

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	pH
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	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 Cheek 4/6/17 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
www.pacelabs.com

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N		6024/394
1	S-BMW-3S	WT	G	4/5/17	1053	4/5/17	1053		4	1		3							1	1	1	1	2		001
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
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	John Chiozzi / Golder	4/5/17	1336		4/5/17	1337
		4/5/17	1700		4/6/17	0850

SAMPLE CONDITIONS			
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
2.4	X	X	Y
13.4	N	X	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Chiozzi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 4/5/17

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

June 29, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory between June 07, 2017 and June 08, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

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

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60246016001	**S-LMW-1S**	Water	06/07/17 11:27	06/08/17 04:10
60246016002	**S-LMW-2S**	Water	06/07/17 10:20	06/08/17 04:10
60246016003	**S-LMW-5S**	Water	06/07/17 11:50	06/08/17 04:10
60246016004	**S-LMW-6S**	Water	06/07/17 12:35	06/08/17 04:10
60246016005	**S-LMW-7S**	Water	06/07/17 14:05	06/08/17 04:10
60246016006	**S-LMW-8S**	Water	06/07/17 14:00	06/08/17 04:10
60246016007	**S-LMW-9S**	Water	06/07/17 09:33	06/08/17 04:10
60246016008	**S-LMW-DUP-2**	Water	06/07/17 08:00	06/08/17 04:10
60246016009	**S-LMW-FB-1**	Water	06/07/17 10:12	06/08/17 04:10
60246016010	**S-LMW-FB-2**	Water	06/07/17 11:33	06/08/17 04:10
60246016011	**S-LMW-1S MS**	Water	06/07/17 11:27	06/08/17 04:10
60246016012	**S-LMW-1S MSD**	Water	06/07/17 11:27	06/08/17 04:10
60245853001	**S-BMW-3S**	Water	06/05/17 14:07	06/07/17 04:25
60245853002	**S-BMW-1S**	Water	06/05/17 15:10	06/07/17 04:25
60245853003	**S-LMW-4S**	Water	06/06/17 14:15	06/07/17 04:25
60245853004	**S-LMW-3S**	Water	06/06/17 15:18	06/07/17 04:25
60245853005	**S-LMW-DUP-1**	Water	06/06/17 08:00	06/07/17 04:25

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60246016001	**S-LMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016002	**S-LMW-2S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016003	**S-LMW-5S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016004	**S-LMW-6S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016005	**S-LMW-7S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016006	**S-LMW-8S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016007	**S-LMW-9S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016008	**S-LMW-DUP-2**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016009	**S-LMW-FB-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016010	**S-LMW-FB-2**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60246016011	**S-LMW-1S MS**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60246016012	**S-LMW-1S MSD**	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60245853001	**S-BMW-3S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245853002	**S-BMW-1S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245853003	**S-LMW-4S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245853004	**S-LMW-3S**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K

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

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245853005	**S-LMW-DUP-1**	EPA 200.7	TDS	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-1S **Lab ID: 60246016001** Collected: 06/07/17 11:27 Received: 06/08/17 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								
Barium	**128**	ug/L	5.0	0.91	1	06/16/17 16:55	06/20/17 18:07	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	06/16/17 16:55	06/20/17 18:07	7440-41-7	
Boron	**351**	ug/L	100	3.5	1	06/16/17 16:55	06/20/17 18:07	7440-42-8	
Calcium	**74300**	ug/L	100	36.0	1	06/16/17 16:55	06/20/17 18:07	7440-70-2	
Cobalt	**0.89J**	ug/L	5.0	0.73	1	06/16/17 16:55	06/20/17 18:07	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 16:55	06/20/17 18:07	7439-92-1	
Lithium	**11.5**	ug/L	10.0	2.9	1	06/16/17 16:55	06/20/17 18:07	7439-93-2	
Molybdenum	**67.3**	ug/L	20.0	1.3	1	06/16/17 16:55	06/20/17 18:07	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.37J**	ug/L	1.0	0.026	1	06/16/17 16:55	06/20/17 14:18	7440-36-0	
Arsenic	**1.8**	ug/L	1.0	0.052	1	06/16/17 16:55	06/20/17 14:18	7440-38-2	
Cadmium	**0.063J**	ug/L	0.50	0.018	1	06/16/17 16:55	06/20/17 14:18	7440-43-9	
Chromium	**0.12J**	ug/L	1.0	0.054	1	06/16/17 16:55	06/20/17 14:18	7440-47-3	
Selenium	**1.5**	ug/L	1.0	0.086	1	06/16/17 16:55	06/20/17 14:18	7782-49-2	
Thallium	**0.10J**	ug/L	1.0	0.036	1	06/16/17 16:55	06/20/17 14:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 14:59	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**348**	mg/L	5.0	5.0	1		06/12/17 14:12		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		06/12/17 12:37		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**20.5**	mg/L	5.0	2.5	5		06/12/17 12:25	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	0.10	1		06/12/17 11:39	16984-48-8	
Sulfate	**49.2**	mg/L	5.0	2.5	5		06/12/17 12:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-2S **Lab ID: 60246016002** Collected: 06/07/17 10:20 Received: 06/08/17 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								
Barium	**133**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:04	7440-39-3	
Beryllium	**0.17J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:04	7440-41-7	B
Boron	**9660**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:04	7440-42-8	
Calcium	**195000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:04	7440-70-2	
Cobalt	**3.9J**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:04	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:04	7439-92-1	
Lithium	**35.4**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:04	7439-93-2	
Molybdenum	**1070**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:04	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.18J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:24	7440-36-0	
Arsenic	**0.62J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:24	7440-38-2	
Cadmium	**0.35J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:24	7440-43-9	
Chromium	**0.11J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:24	7440-47-3	
Selenium	**0.12J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:24	7782-49-2	
Thallium	**0.041J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:24	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:06	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1090**	mg/L	5.0	5.0	1		06/12/17 14:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		06/12/17 12:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**132**	mg/L	20.0	10.0	20		06/12/17 13:57	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.10	1		06/12/17 13:42	16984-48-8	
Sulfate	**265**	mg/L	20.0	10.0	20		06/12/17 13:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-5S **Lab ID: 60246016003** Collected: 06/07/17 11:50 Received: 06/08/17 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								
Barium	**72.9**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:06	7440-39-3	
Beryllium	**0.21J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:06	7440-41-7	B
Boron	**12600**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:06	7440-42-8	
Calcium	**248000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:06	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:06	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:06	7439-92-1	
Lithium	**55.5**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:06	7439-93-2	
Molybdenum	**870**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:06	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.13J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:43	7440-36-0	
Arsenic	**0.45J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:43	7440-38-2	
Cadmium	**0.65**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:43	7440-43-9	
Chromium	**0.26J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:43	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:43	7782-49-2	
Thallium	**0.11J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:43	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1550**	mg/L	5.0	5.0	1		06/12/17 14:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/12/17 12:42		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**23.5**	mg/L	2.0	1.0	2		06/12/17 14:28	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.10	1		06/12/17 14:13	16984-48-8	
Sulfate	**771**	mg/L	50.0	25.0	50		06/12/17 14:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-6S **Lab ID: 60246016004** Collected: 06/07/17 12:35 Received: 06/08/17 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								
Barium	**49.8**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:08	7440-39-3	
Beryllium	**0.21J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:08	7440-41-7	B
Boron	**14500**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:08	7440-42-8	
Calcium	**264000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:08	7440-70-2	
Cobalt	**7.2**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:08	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:08	7439-92-1	
Lithium	**19.2**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:08	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:08	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.21J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:46	7440-36-0	
Arsenic	**0.30J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:46	7440-38-2	
Cadmium	**0.58**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:46	7440-43-9	
Chromium	**0.93J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:46	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:46	7782-49-2	
Thallium	**0.055J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:46	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:10	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1590**	mg/L	5.0	5.0	1		06/12/17 14:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/12/17 12:47		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.2**	mg/L	1.0	0.50	1		06/12/17 14:59	16887-00-6	
Fluoride	**0.16J**	mg/L	0.20	0.10	1		06/12/17 14:59	16984-48-8	
Sulfate	**774**	mg/L	100	50.0	100		06/12/17 15:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-7S **Lab ID: 60246016005** Collected: 06/07/17 14:05 Received: 06/08/17 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								
Barium	**121**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:10	7440-39-3	
Beryllium	**0.24J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:10	7440-41-7	B
Boron	**3320**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:10	7440-42-8	
Calcium	**225000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:10	7440-70-2	
Cobalt	**2.3J**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:10	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:10	7439-92-1	
Lithium	**20.5**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:10	7439-93-2	
Molybdenum	**2.2J**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:10	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.097J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:49	7440-36-0	
Arsenic	**0.097J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:49	7440-38-2	
Cadmium	**0.30J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:49	7440-43-9	
Chromium	**0.16J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:49	7440-47-3	
Selenium	**0.45J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:49	7782-49-2	
Thallium	**0.049J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:49	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1180**	mg/L	5.0	5.0	1		06/12/17 14:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		06/12/17 14:48		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**24.8**	mg/L	2.0	1.0	2		06/13/17 10:24	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.10	1		06/12/17 15:30	16984-48-8	
Sulfate	**426**	mg/L	50.0	25.0	50		06/12/17 15:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-8S **Lab ID: 60246016006** Collected: 06/07/17 14:00 Received: 06/08/17 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								
Barium	**111**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:13	7440-39-3	
Beryllium	**0.28J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:13	7440-41-7	B
Boron	**6500**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:13	7440-42-8	
Calcium	**160000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:13	7440-70-2	
Cobalt	**6.1**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:13	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:13	7439-92-1	
Lithium	**17.2**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:13	7439-93-2	
Molybdenum	**346**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:13	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.22J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:52	7440-36-0	
Arsenic	**0.76J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:52	7440-38-2	
Cadmium	**0.74**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:52	7440-43-9	
Chromium	**1.5**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:52	7440-47-3	
Selenium	**0.33J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:52	7782-49-2	
Thallium	**0.055J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:52	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**976**	mg/L	5.0	5.0	1		06/12/17 14:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		06/12/17 12:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**51.4**	mg/L	5.0	2.5	5		06/12/17 16:47	16887-00-6	
Fluoride	**0.83**	mg/L	0.20	0.10	1		06/12/17 16:31	16984-48-8	
Sulfate	**422**	mg/L	50.0	25.0	50		06/12/17 17:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-9S **Lab ID: 60246016007** Collected: 06/07/17 09:33 Received: 06/08/17 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								
Barium	**77.0**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:17	7440-39-3	
Beryllium	**0.43J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:17	7440-41-7	B
Boron	**1500**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:17	7440-42-8	
Calcium	**196000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:17	7440-70-2	
Cobalt	**5.5**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:17	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:17	7439-92-1	
Lithium	**41.7**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:17	7439-93-2	
Molybdenum	**14.5J**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:17	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.13J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:56	7440-36-0	
Arsenic	**0.54J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:56	7440-38-2	
Cadmium	**0.22J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:56	7440-43-9	
Chromium	**0.17J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:56	7440-47-3	
Selenium	**0.65J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:56	7782-49-2	
Thallium	**0.085J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:56	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1090**	mg/L	5.0	5.0	1		06/12/17 14:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**6.9**	Std. Units	0.10	0.10	1		06/12/17 12:27		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**93.1**	mg/L	5.0	2.5	5		06/12/17 17:33	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.10	1		06/12/17 17:17	16984-48-8	
Sulfate	**287**	mg/L	20.0	10.0	20		06/12/17 17:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-DUP-2 **Lab ID: 60246016008** Collected: 06/07/17 08:00 Received: 06/08/17 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								
Barium	**112**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:19	7440-39-3	
Beryllium	**0.25J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:19	7440-41-7	B
Boron	**6600**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:19	7440-42-8	
Calcium	**162000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:19	7440-70-2	
Cobalt	**6.2**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:19	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:19	7439-92-1	
Lithium	**17.5**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:19	7439-93-2	
Molybdenum	**351**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:19	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.23J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:59	7440-36-0	
Arsenic	**0.81J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:59	7440-38-2	
Cadmium	**0.77**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:59	7440-43-9	
Chromium	**0.16J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:59	7440-47-3	
Selenium	**0.38J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:59	7782-49-2	
Thallium	**0.047J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:59	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:24	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**980**	mg/L	5.0	5.0	1		06/12/17 14:15		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		06/09/17 12:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**55.1**	mg/L	5.0	2.5	5		06/12/17 18:19	16887-00-6	
Fluoride	**0.83**	mg/L	0.20	0.10	1		06/12/17 18:04	16984-48-8	
Sulfate	**420**	mg/L	50.0	25.0	50		06/13/17 10:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-FB-1 **Lab ID: 60246016009** Collected: 06/07/17 10:12 Received: 06/08/17 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								
Barium	**<0.91**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:21	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:21	7440-41-7	
Boron	**36.6J**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:21	7440-42-8	
Calcium	**57.5J**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:21	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:21	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:21	7439-92-1	
Lithium	**<2.9**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:21	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:21	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.026**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:34	7440-36-0	
Arsenic	**<0.052**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:34	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:34	7440-43-9	
Chromium	**0.17J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:34	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:34	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:26	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		06/13/17 09:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.4**	Std. Units	0.10	0.10	1		06/12/17 12:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		06/12/17 18:50	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		06/12/17 18:50	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		06/12/17 18:50	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-FB-2 **Lab ID: 60246016010** Collected: 06/07/17 11:33 Received: 06/08/17 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								
Barium	**<0.91**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:28	7440-39-3	
Beryllium	**0.24J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:28	7440-41-7	B
Boron	**12.2J**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:28	7440-42-8	
Calcium	**<36.0**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:28	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:28	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:28	7439-92-1	
Lithium	**<2.9**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:28	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:28	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**<0.026**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:37	7440-36-0	
Arsenic	**<0.052**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:37	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:37	7440-43-9	
Chromium	**0.19J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:37	7440-47-3	
Selenium	**<0.086**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:37	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/19/17 10:08	06/19/17 15:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		06/13/17 09:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**5.8**	Std. Units	0.10	0.10	1		06/12/17 12:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		06/12/17 19:36	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		06/12/17 19:36	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		06/12/17 19:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-BMW-3S **Lab ID: 60245853001** Collected: 06/05/17 14:07 Received: 06/07/17 04:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**180**	ug/L	5.0	0.91	1	06/14/17 17:00	06/19/17 17:21	7440-39-3	
Beryllium	**0.28J**	ug/L	1.0	0.16	1	06/14/17 17:00	06/19/17 17:21	7440-41-7	B
Boron	**55.3J**	ug/L	100	3.5	1	06/14/17 17:00	06/19/17 17:21	7440-42-8	
Calcium	**113000**	ug/L	100	36.0	1	06/14/17 17:00	06/19/17 17:21	7440-70-2	
Cobalt	**2.0J**	ug/L	5.0	0.73	1	06/14/17 17:00	06/19/17 17:21	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/14/17 17:00	06/19/17 17:21	7439-92-1	
Lithium	**8.7J**	ug/L	10.0	2.9	1	06/14/17 17:00	06/19/17 17:21	7439-93-2	B
Molybdenum	**2.4J**	ug/L	20.0	1.3	1	06/14/17 17:00	06/19/17 17:21	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.039J**	ug/L	1.0	0.026	1	06/14/17 17:00	06/16/17 23:05	7440-36-0	
Arsenic	**0.64J**	ug/L	1.0	0.052	1	06/14/17 17:00	06/16/17 23:05	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	06/14/17 17:00	06/16/17 23:05	7440-43-9	
Chromium	**0.12J**	ug/L	1.0	0.054	1	06/14/17 17:00	06/16/17 23:05	7440-47-3	
Selenium	**0.095J**	ug/L	1.0	0.086	1	06/14/17 17:00	06/16/17 23:05	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	06/14/17 17:00	06/16/17 23:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/22/17 16:50	06/23/17 09:19	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**426**	mg/L	5.0	5.0	1		06/08/17 08:02		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/07/17 16:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.5**	mg/L	1.0	0.50	1		06/09/17 21:30	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	0.10	1		06/09/17 21:30	16984-48-8	
Sulfate	**25.0**	mg/L	2.0	1.0	2		06/09/17 21:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-BMW-1S **Lab ID: 60245853002** Collected: 06/05/17 15:10 Received: 06/07/17 04:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**146**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 16:51	7440-39-3	
Beryllium	**0.42J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 16:51	7440-41-7	B
Boron	**65.3J**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 16:51	7440-42-8	
Calcium	**140000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 16:51	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 16:51	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 16:51	7439-92-1	
Lithium	**<2.9**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 16:51	7439-93-2	
Molybdenum	**2.5J**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 16:51	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.093J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:12	7440-36-0	
Arsenic	**0.73J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:12	7440-38-2	
Cadmium	**0.10J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:12	7440-43-9	
Chromium	**0.18J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:12	7440-47-3	
Selenium	**0.18J**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:12	7782-49-2	
Thallium	**0.11J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:12	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/22/17 16:50	06/23/17 09:21	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**409**	mg/L	5.0	5.0	1		06/08/17 08:02		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.8**	Std. Units	0.10	0.10	1		06/07/17 16:22		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**16.8**	mg/L	1.0	0.50	1		06/09/17 22:32	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	0.10	1		06/09/17 22:32	16984-48-8	
Sulfate	**23.1**	mg/L	2.0	1.0	2		06/09/17 22:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-4S **Lab ID: 60245853003** Collected: 06/06/17 14:15 Received: 06/07/17 04:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**239**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 16:53	7440-39-3	
Beryllium	**0.18J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 16:53	7440-41-7	B
Boron	**302**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 16:53	7440-42-8	
Calcium	**141000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 16:53	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 16:53	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 16:53	7439-92-1	
Lithium	**23.0**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 16:53	7439-93-2	
Molybdenum	**2.1J**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 16:53	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.12J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:15	7440-36-0	
Arsenic	**0.24J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:15	7440-38-2	
Cadmium	**0.16J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:15	7440-43-9	
Chromium	**0.13J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:15	7440-47-3	
Selenium	**2.3**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:15	7782-49-2	
Thallium	**0.063J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:15	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/22/17 16:50	06/23/17 09:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**604**	mg/L	5.0	5.0	1		06/09/17 07:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/09/17 12:29		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.1**	mg/L	1.0	0.50	1		06/09/17 23:03	16887-00-6	
Fluoride	**0.17J**	mg/L	0.20	0.10	1		06/09/17 23:03	16984-48-8	
Sulfate	**55.2**	mg/L	5.0	2.5	5		06/12/17 13:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-3S **Lab ID: 60245853004** Collected: 06/06/17 15:18 Received: 06/07/17 04:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**169**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 16:55	7440-39-3	
Beryllium	**0.20J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 16:55	7440-41-7	B
Boron	**253**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 16:55	7440-42-8	
Calcium	**149000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 16:55	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 16:55	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 16:55	7439-92-1	
Lithium	**20.3**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 16:55	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 16:55	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.098J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:18	7440-36-0	
Arsenic	**0.25J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:18	7440-38-2	
Cadmium	**0.024J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:18	7440-43-9	
Chromium	**0.48J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:18	7440-47-3	
Selenium	**2.3**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:18	7782-49-2	
Thallium	**0.044J**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:18	7440-28-0	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/22/17 16:50	06/23/17 09:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**572**	mg/L	5.0	5.0	1		06/09/17 07:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/09/17 12:34		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**33.2**	mg/L	2.0	1.0	2		06/09/17 23:49	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.10	1		06/09/17 23:33	16984-48-8	
Sulfate	**36.5**	mg/L	2.0	1.0	2		06/09/17 23:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-DUP-1 **Lab ID: 60245853005** Collected: 06/06/17 08:00 Received: 06/07/17 04:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**169**	ug/L	5.0	0.91	1	06/16/17 10:25	06/16/17 17:01	7440-39-3	
Beryllium	**0.26J**	ug/L	1.0	0.16	1	06/16/17 10:25	06/16/17 17:01	7440-41-7	B
Boron	**250**	ug/L	100	3.5	1	06/16/17 10:25	06/16/17 17:01	7440-42-8	
Calcium	**147000**	ug/L	100	36.0	1	06/16/17 10:25	06/16/17 17:01	7440-70-2	
Cobalt	**<0.73**	ug/L	5.0	0.73	1	06/16/17 10:25	06/16/17 17:01	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/16/17 10:25	06/16/17 17:01	7439-92-1	
Lithium	**18.4**	ug/L	10.0	2.9	1	06/16/17 10:25	06/16/17 17:01	7439-93-2	
Molybdenum	**<1.3**	ug/L	20.0	1.3	1	06/16/17 10:25	06/16/17 17:01	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.089J**	ug/L	1.0	0.026	1	06/16/17 10:25	06/20/17 13:21	7440-36-0	
Arsenic	**0.32J**	ug/L	1.0	0.052	1	06/16/17 10:25	06/20/17 13:21	7440-38-2	
Cadmium	**0.034J**	ug/L	0.50	0.018	1	06/16/17 10:25	06/20/17 13:21	7440-43-9	
Chromium	**0.54J**	ug/L	1.0	0.054	1	06/16/17 10:25	06/20/17 13:21	7440-47-3	
Selenium	**2.4**	ug/L	1.0	0.086	1	06/16/17 10:25	06/20/17 13:21	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	06/16/17 10:25	06/20/17 13:21	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	06/22/17 16:50	06/23/17 09:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**576**	mg/L	5.0	5.0	1		06/09/17 07:42		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		06/09/17 10:07		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**33.5**	mg/L	2.0	1.0	2		06/10/17 00:35	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.10	1		06/10/17 00:20	16984-48-8	
Sulfate	**36.7**	mg/L	2.0	1.0	2		06/10/17 00:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481494 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

METHOD BLANK: 1972826 Matrix: Water
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	06/19/17 14:50	

LABORATORY CONTROL SAMPLE: 1972827

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.4	88	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1972828 1972829

Parameter	Units	60246016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.6	4.5	92	90	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 482248 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

METHOD BLANK: 1975364 Matrix: Water
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	06/23/17 09:08	

LABORATORY CONTROL SAMPLE: 1975365

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1975366 1975367

Parameter	Units	60245851003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.046	5	5	4.8	4.4	95	87	75-125	9	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1975368 1975369

Parameter	Units	60246227005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.054J	5	5	4.6	4.3	90	85	75-125	6	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481055
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60245853001

METHOD BLANK: 1970475 Matrix: Water
Associated Lab Samples: 60245853001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	06/19/17 16:31	
Beryllium	ug/L	0.49J	1.0	0.16	06/19/17 16:31	
Boron	ug/L	<3.5	100	3.5	06/19/17 16:31	
Calcium	ug/L	36.1J	100	36.0	06/19/17 16:31	
Cobalt	ug/L	<0.73	5.0	0.73	06/19/17 16:31	
Lead	ug/L	<2.4	5.0	2.4	06/19/17 16:31	
Lithium	ug/L	3.3J	10.0	2.9	06/19/17 16:31	
Molybdenum	ug/L	<1.3	20.0	1.3	06/19/17 16:31	

LABORATORY CONTROL SAMPLE: 1970476

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1020	102	85-115	
Beryllium	ug/L	1000	1010	101	85-115	
Boron	ug/L	1000	901	90	85-115	
Calcium	ug/L	10000	9440	94	85-115	
Cobalt	ug/L	1000	1050	105	85-115	
Lead	ug/L	1000	1070	107	85-115	
Lithium	ug/L	1000	999	100	85-115	
Molybdenum	ug/L	1000	1070	107	85-115	

MATRIX SPIKE SAMPLE: 1970477

Parameter	Units	60245849006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	249	1000	1280	103	70-130	
Beryllium	ug/L	0.52J	1000	1020	102	70-130	
Boron	ug/L	696	1000	1640	94	70-130	
Calcium	ug/L	128000	10000	137000	99	70-130	
Cobalt	ug/L	2.2J	1000	1030	102	70-130	
Lead	ug/L	<2.4	1000	1050	105	70-130	
Lithium	ug/L	33.0	1000	1080	104	70-130	
Molybdenum	ug/L	2.6J	1000	1090	109	70-130	

MATRIX SPIKE SAMPLE: 1970478

Parameter	Units	60245849009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	291	1000	1320	103	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

MATRIX SPIKE SAMPLE: 1970478

Parameter	Units	60245849009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Beryllium	ug/L	0.28J	1000	1020	102	70-130	
Boron	ug/L	80.0J	1000	1010	93	70-130	
Calcium	ug/L	128000	10000	137000	96	70-130	
Cobalt	ug/L	1.6J	1000	1020	102	70-130	
Lead	ug/L	<2.4	1000	1040	104	70-130	
Lithium	ug/L	34.8	1000	1080	105	70-130	
Molybdenum	ug/L	1.6J	1000	1080	108	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481289 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60245853002, 60245853003, 60245853004, 60245853005, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

METHOD BLANK: 1971503 Matrix: Water
Associated Lab Samples: 60245853002, 60245853003, 60245853004, 60245853005, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	06/16/17 16:42	
Beryllium	ug/L	0.38J	1.0	0.16	06/16/17 16:42	
Boron	ug/L	<3.5	100	3.5	06/16/17 16:42	
Calcium	ug/L	<36.0	100	36.0	06/16/17 16:42	
Cobalt	ug/L	<0.73	5.0	0.73	06/16/17 16:42	
Lead	ug/L	<2.4	5.0	2.4	06/16/17 16:42	
Lithium	ug/L	<2.9	10.0	2.9	06/16/17 16:42	
Molybdenum	ug/L	<1.3	20.0	1.3	06/16/17 16:42	

LABORATORY CONTROL SAMPLE: 1971504

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1060	106	85-115	
Beryllium	ug/L	1000	1060	106	85-115	
Boron	ug/L	1000	942	94	85-115	
Calcium	ug/L	10000	9650	97	85-115	
Cobalt	ug/L	1000	1070	107	85-115	
Lead	ug/L	1000	1080	108	85-115	
Lithium	ug/L	1000	1060	106	85-115	
Molybdenum	ug/L	1000	1080	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971505 1971506

Parameter	Units	60245851003 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	1180	1170	106	106	70-130	1	20	
Beryllium	ug/L	0.26J	1000	1000	1070	1060	107	106	70-130	1	20	
Boron	ug/L	781	1000	1000	1760	1730	98	95	70-130	2	20	
Calcium	ug/L	69600	10000	10000	80200	78000	107	84	70-130	3	20	
Cobalt	ug/L	<0.73	1000	1000	1060	1050	106	105	70-130	0	20	
Lead	ug/L	<2.4	1000	1000	1070	1060	107	106	70-130	1	20	
Lithium	ug/L	13.2	1000	1000	1090	1090	108	107	70-130	1	20	
Molybdenum	ug/L	115	1000	1000	1210	1200	110	109	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

MATRIX SPIKE SAMPLE: 1971507

Parameter	Units	60246016006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	111	1000	1190	108	70-130	
Beryllium	ug/L	0.28J	1000	1070	107	70-130	
Boron	ug/L	6500	1000	7600	110	70-130	
Calcium	ug/L	160000	10000	172000	114	70-130	
Cobalt	ug/L	6.1	1000	1060	105	70-130	
Lead	ug/L	<2.4	1000	1060	106	70-130	
Lithium	ug/L	17.2	1000	1140	112	70-130	
Molybdenum	ug/L	346	1000	1460	111	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

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

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481360
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60246016001

METHOD BLANK: 1971823 Matrix: Water
Associated Lab Samples: 60246016001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	06/20/17 18:05	
Beryllium	ug/L	0.31J	1.0	0.16	06/20/17 18:05	
Boron	ug/L	3.9J	100	3.5	06/20/17 18:05	
Calcium	ug/L	<36.0	100	36.0	06/20/17 18:05	
Cobalt	ug/L	<0.73	5.0	0.73	06/20/17 18:05	
Lead	ug/L	<2.4	5.0	2.4	06/20/17 18:05	
Lithium	ug/L	<2.9	10.0	2.9	06/20/17 18:05	
Molybdenum	ug/L	<1.3	20.0	1.3	06/20/17 18:05	

LABORATORY CONTROL SAMPLE: 1971824

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	965	96	85-115	
Beryllium	ug/L	1000	982	98	85-115	
Boron	ug/L	1000	927	93	85-115	
Calcium	ug/L	10000	9650	97	85-115	
Cobalt	ug/L	1000	984	98	85-115	
Lead	ug/L	1000	985	98	85-115	
Lithium	ug/L	1000	945	94	85-115	
Molybdenum	ug/L	1000	994	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971825 1971826

Parameter	Units	60246016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	128	1000	1000	1150	1130	103	100	70-130	2	20	
Beryllium	ug/L	<0.16	1000	1000	1050	1020	105	102	70-130	2	20	
Boron	ug/L	351	1000	1000	1340	1340	99	98	70-130	0	20	
Calcium	ug/L	74300	10000	10000	83900	83500	96	92	70-130	1	20	
Cobalt	ug/L	0.89J	1000	1000	1020	994	101	99	70-130	2	20	
Lead	ug/L	<2.4	1000	1000	1010	992	101	99	70-130	2	20	
Lithium	ug/L	11.5	1000	1000	1030	1010	102	100	70-130	2	20	
Molybdenum	ug/L	67.3	1000	1000	1110	1090	104	102	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

MATRIX SPIKE SAMPLE: 1971827

Parameter	Units	60246023002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	96.8	1000	1090	99	70-130	
Beryllium	ug/L	<0.16	1000	1010	101	70-130	
Boron	ug/L	24200	1000	25400	121	70-130	
Calcium	ug/L	244000	10000	254000	106	70-130	
Cobalt	ug/L	<0.73	1000	984	98	70-130	
Lead	ug/L	3.0J	1000	961	96	70-130	
Lithium	ug/L	18.6	1000	1050	103	70-130	
Molybdenum	ug/L	2170	1000	3160	99	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481057 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60245853001

METHOD BLANK: 1970480 Matrix: Water
Associated Lab Samples: 60245853001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	06/16/17 21:56	
Arsenic	ug/L	<0.052	1.0	0.052	06/16/17 21:56	
Cadmium	ug/L	<0.018	0.50	0.018	06/16/17 21:56	
Chromium	ug/L	<0.054	1.0	0.054	06/16/17 21:56	
Selenium	ug/L	<0.086	1.0	0.086	06/16/17 21:56	
Thallium	ug/L	<0.036	1.0	0.036	06/16/17 21:56	

LABORATORY CONTROL SAMPLE: 1970481

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	40.2	101	85-115	
Arsenic	ug/L	40	39.9	100	85-115	
Cadmium	ug/L	40	39.7	99	85-115	
Chromium	ug/L	40	40.4	101	85-115	
Selenium	ug/L	40	39.6	99	85-115	
Thallium	ug/L	40	38.0	95	85-115	

MATRIX SPIKE SAMPLE: 1970482

Parameter	Units	60245849004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.12J	40	40.5	101	70-130	
Arsenic	ug/L	0.48J	40	40.3	100	70-130	
Cadmium	ug/L	0.18J	40	38.8	97	70-130	
Chromium	ug/L	0.26J	40	39.8	99	70-130	
Selenium	ug/L	0.87J	40	37.9	93	70-130	
Thallium	ug/L	0.041J	40	39.7	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1970483 1970484

Parameter	Units	60245849009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.090J	40	40	40.5	40.1	101	100	70-130	1	20	
Arsenic	ug/L	0.52J	40	40	40.8	39.8	101	98	70-130	2	20	
Cadmium	ug/L	0.043J	40	40	39.2	38.6	98	96	70-130	2	20	
Chromium	ug/L	0.16J	40	40	40.0	39.2	100	98	70-130	2	20	
Selenium	ug/L	1.1	40	40	38.8	38.0	94	92	70-130	2	20	
Thallium	ug/L	<0.036	40	40	39.6	39.2	99	98	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481290 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60245853002, 60245853003, 60245853004, 60245853005, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

METHOD BLANK: 1971508 Matrix: Water
Associated Lab Samples: 60245853002, 60245853003, 60245853004, 60245853005, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	06/20/17 12:56	
Arsenic	ug/L	<0.052	1.0	0.052	06/20/17 12:56	
Cadmium	ug/L	<0.018	0.50	0.018	06/20/17 12:56	
Chromium	ug/L	<0.054	1.0	0.054	06/20/17 12:56	
Selenium	ug/L	<0.086	1.0	0.086	06/20/17 12:56	
Thallium	ug/L	0.043J	1.0	0.036	06/20/17 12:56	

LABORATORY CONTROL SAMPLE: 1971509

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.2	98	85-115	
Arsenic	ug/L	40	38.7	97	85-115	
Cadmium	ug/L	40	39.0	97	85-115	
Chromium	ug/L	40	39.5	99	85-115	
Selenium	ug/L	40	39.3	98	85-115	
Thallium	ug/L	40	37.0	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971510 1971511

Parameter	Units	60245851003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.026	40	40	39.0	38.9	97	97	70-130	0	20	
Arsenic	ug/L	0.14J	40	40	38.9	39.1	97	97	70-130	1	20	
Cadmium	ug/L	0.030J	40	40	38.0	38.4	95	96	70-130	1	20	
Chromium	ug/L	0.10J	40	40	39.4	39.5	98	99	70-130	0	20	
Selenium	ug/L	<0.086	40	40	36.8	37.2	92	93	70-130	1	20	
Thallium	ug/L	0.11J	40	40	39.1	39.0	97	97	70-130	0	20	

MATRIX SPIKE SAMPLE: 1971512

Parameter	Units	60246016002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.18J	40	38.9	97	70-130	
Arsenic	ug/L	0.62J	40	38.6	95	70-130	
Cadmium	ug/L	0.35J	40	37.0	92	70-130	
Chromium	ug/L	0.11J	40	39.0	97	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

MATRIX SPIKE SAMPLE: 1971512

Parameter	Units	60246016002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Selenium	ug/L	0.12J	40	35.2	88	70-130	
Thallium	ug/L	0.041J	40	40.2	100	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 481363
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 60246016001

METHOD BLANK: 1971832 Matrix: Water
Associated Lab Samples: 60246016001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	06/20/17 14:11	
Arsenic	ug/L	<0.052	1.0	0.052	06/20/17 14:11	
Cadmium	ug/L	<0.018	0.50	0.018	06/20/17 14:11	
Chromium	ug/L	<0.054	1.0	0.054	06/20/17 14:11	
Selenium	ug/L	<0.086	1.0	0.086	06/20/17 14:11	
Thallium	ug/L	<0.036	1.0	0.036	06/20/17 14:11	

LABORATORY CONTROL SAMPLE: 1971833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.4	96	85-115	
Arsenic	ug/L	40	38.2	95	85-115	
Cadmium	ug/L	40	38.4	96	85-115	
Chromium	ug/L	40	39.4	99	85-115	
Selenium	ug/L	40	38.8	97	85-115	
Thallium	ug/L	40	36.8	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971834 1971835

Parameter	Units	60246016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.37J	40	40	38.9	38.6	96	96	70-130	1	20	
Arsenic	ug/L	1.8	40	40	40.8	40.5	97	97	70-130	1	20	
Cadmium	ug/L	0.063J	40	40	37.8	37.5	94	94	70-130	1	20	
Chromium	ug/L	0.12J	40	40	39.2	38.9	98	97	70-130	1	20	
Selenium	ug/L	1.5	40	40	39.0	38.4	94	92	70-130	2	20	
Thallium	ug/L	0.10J	40	40	38.6	38.6	96	96	70-130	0	20	

MATRIX SPIKE SAMPLE: 1971836

Parameter	Units	60246023003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	0.030J	40	37.9	95	70-130	
Arsenic	ug/L	0.23J	40	38.8	96	70-130	
Cadmium	ug/L	0.53	40	37.0	91	70-130	
Chromium	ug/L	0.67J	40	39.0	96	70-130	
Selenium	ug/L	0.17J	40	35.6	89	70-130	
Thallium	ug/L	0.052J	40	40.0	100	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480117 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60245853001, 60245853002

METHOD BLANK: 1966536 Matrix: Water
Associated Lab Samples: 60245853001, 60245853002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/08/17 07:57	

LABORATORY CONTROL SAMPLE: 1966537

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	967	97	80-120	

SAMPLE DUPLICATE: 1966538

Parameter	Units	60245753007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	470	460	2	10	

SAMPLE DUPLICATE: 1966539

Parameter	Units	60245829001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6080	6110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480253 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60245853003, 60245853004, 60245853005

METHOD BLANK: 1967043 Matrix: Water
Associated Lab Samples: 60245853003, 60245853004, 60245853005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/09/17 07:34	

LABORATORY CONTROL SAMPLE: 1967044

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	955	96	80-120	

SAMPLE DUPLICATE: 1967045

Parameter	Units	60245849009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	532	521	2	10	

SAMPLE DUPLICATE: 1967046

Parameter	Units	60245851003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	353	323	9	10	

SAMPLE DUPLICATE: 1967047

Parameter	Units	60245890001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1050	1020	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480655 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008

METHOD BLANK: 1969058 Matrix: Water
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/12/17 14:08	

LABORATORY CONTROL SAMPLE: 1969059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	933	93	80-120	

SAMPLE DUPLICATE: 1969060

Parameter	Units	60245847001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1510	1470	2	10	

SAMPLE DUPLICATE: 1969061

Parameter	Units	60246016001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	348	331	5	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480719 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60246016009, 60246016010

METHOD BLANK: 1969196 Matrix: Water
Associated Lab Samples: 60246016009, 60246016010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/13/17 09:30	

LABORATORY CONTROL SAMPLE: 1969197

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	956	96	80-120	

SAMPLE DUPLICATE: 1969198

Parameter	Units	60246023002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1220	1210	1	10	

SAMPLE DUPLICATE: 1969199

Parameter	Units	60246063001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2420	2500	3	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480064
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60245853001, 60245853002

SAMPLE DUPLICATE: 1966201

Parameter	Units	60245680003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.1	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480363
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60245853005

SAMPLE DUPLICATE: 1967625

Parameter	Units	60245849009 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480445 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60245853003, 60245853004, 60246016008

SAMPLE DUPLICATE: 1968061

Parameter	Units	60245851003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.1	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480652 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016006, 60246016007, 60246016009, 60246016010

SAMPLE DUPLICATE: 1969048

Parameter	Units	60246023007 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	5.3	5.4	1	5	H6

SAMPLE DUPLICATE: 1969049

Parameter	Units	60246016001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	7.6	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480678
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60246016005

SAMPLE DUPLICATE: 1969105

Parameter	Units	60246016005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	7.0	0	5	H6

SAMPLE DUPLICATE: 1969106

Parameter	Units	60246227005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.1	2	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480432 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

METHOD BLANK: 1967966 Matrix: Water
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	06/09/17 08:44	
Fluoride	mg/L	<0.10	0.20	0.10	06/09/17 08:44	
Sulfate	mg/L	<0.50	1.0	0.50	06/09/17 08:44	

LABORATORY CONTROL SAMPLE: 1967967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	102	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1967968 1967969

Parameter	Units	60245849009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	10.9	5	5	16.6	16.6	114	114	80-120	0	15	
Fluoride	mg/L	0.34	2.5	2.5	2.9	2.9	103	104	80-120	1	15	
Sulfate	mg/L	50.8	25	25	76.3	76.5	102	103	80-120	0	15	

MATRIX SPIKE SAMPLE: 1967970

Parameter	Units	60245851003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	19.5	10	31.0	115	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480584 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245853003

METHOD BLANK: 1968899 Matrix: Water
Associated Lab Samples: 60245853003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.50	1.0	0.50	06/12/17 08:53	

LABORATORY CONTROL SAMPLE: 1968900

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1968901 1968902

Parameter	Units	60245973001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	12.4	5	5	17.8	17.9	107	109	80-120	0	15	

MATRIX SPIKE SAMPLE: 1968952

Parameter	Units	60246129001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1800	1000	2840	104	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480615 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

METHOD BLANK: 1968961 Matrix: Water
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	06/12/17 08:52	
Fluoride	mg/L	<0.10	0.20	0.10	06/12/17 08:52	
Sulfate	mg/L	<0.50	1.0	0.50	06/12/17 08:52	

LABORATORY CONTROL SAMPLE: 1968962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1968963 1968964

Parameter	Units	60246016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.5	25	25	46.8	46.6	105	104	80-120	0	15	
Fluoride	mg/L	0.26	2.5	2.5	2.8	2.8	102	103	80-120	1	15	
Sulfate	mg/L	49.2	25	25	74.8	74.6	102	101	80-120	0	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 480760 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60246016005, 60246016008

METHOD BLANK: 1969311 Matrix: Water
Associated Lab Samples: 60246016005, 60246016008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	06/13/17 09:11	
Sulfate	mg/L	<0.50	1.0	0.50	06/13/17 09:11	

LABORATORY CONTROL SAMPLE: 1969312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	90-110	
Sulfate	mg/L	5	4.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1969313 1969314

Parameter	Units	60246271001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	18.1	50	50	66.8	66.5	98	97	80-120	1	15	
Sulfate	mg/L	64.9	50	50	114	114	99	98	80-120	0	15	

MATRIX SPIKE SAMPLE: 1969402

Parameter	Units	60246226001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	27.2	10	37.2	100	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-1S **Lab ID: 60246016001** Collected: 06/07/17 11:27 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.261 ± 0.299 (0.177) C:NA T:86%**	pCi/L	06/22/17 10:30	13982-63-3	
Radium-228	EPA 904.0	**0.805 ± 0.464 (0.850) C:73% T:92%**	pCi/L	06/24/17 15:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-2S **Lab ID: 60246016002** Collected: 06/07/17 10:20 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.293 ± 0.346 (0.543) C:NA T:88%**	pCi/L	06/22/17 10:46	13982-63-3	
Radium-228	EPA 904.0	**0.933 ± 0.599 (1.16) C:78% T:84%**	pCi/L	06/24/17 15:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-5S **Lab ID: 60246016003** Collected: 06/07/17 11:50 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.249 ± 0.301 (0.459) C:NA T:97%**	pCi/L	06/22/17 10:30	13982-63-3	
Radium-228	EPA 904.0	**0.785 ± 0.499 (0.942) C:76% T:86%**	pCi/L	06/24/17 15:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-6S **Lab ID: 60246016004** Collected: 06/07/17 12:35 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.637 ± 0.401 (0.173) C:NA T:90%**	pCi/L	06/22/17 10:30	13982-63-3	
Radium-228	EPA 904.0	**0.715 ± 0.484 (0.928) C:69% T:90%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-7S **Lab ID: 60246016005** Collected: 06/07/17 14:05 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.499 ± 0.391 (0.459) C:NA T:86%**	pCi/L	06/22/17 10:47	13982-63-3	
Radium-228	EPA 904.0	**0.827 ± 0.465 (0.848) C:76% T:90%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-8S **Lab ID: 60246016006** Collected: 06/07/17 14:00 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.394 ± 0.457 (0.737) C:NA T:88%**	pCi/L	06/22/17 10:47	13982-63-3	
Radium-228	EPA 904.0	**0.700 ± 0.536 (1.06) C:72% T:76%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-9S **Lab ID: 60246016007** Collected: 06/07/17 09:33 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.551 ± 0.438 (0.569) C:NA T:90%**	pCi/L	06/22/17 11:14	13982-63-3	
Radium-228	EPA 904.0	**0.371 ± 0.358 (0.732) C:78% T:92%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-DUP-2 **Lab ID: 60246016008** Collected: 06/07/17 08:00 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.243 ± 0.279 (0.165) C:NA T:90%**	pCi/L	06/22/17 10:47	13982-63-3	
Radium-228	EPA 904.0	**0.876 ± 0.556 (1.07) C:74% T:84%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-FB-1 **Lab ID: 60246016009** Collected: 06/07/17 10:12 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.244 ± 0.379 (0.656) C:NA T:89%**	pCi/L	06/22/17 10:48	13982-63-3	
Radium-228	EPA 904.0	**0.334 ± 0.362 (0.752) C:84% T:83%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-FB-2 **Lab ID: 60246016010** Collected: 06/07/17 11:33 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.186 ± 0.403 (0.743) C:NA T:86%**	pCi/L	06/22/17 10:48	13982-63-3	
Radium-228	EPA 904.0	**0.423 ± 0.496 (1.05) C:79% T:74%**	pCi/L	06/24/17 15:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-1S MS **Lab ID: 60246016011** Collected: 06/07/17 11:27 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**101.73%REC ± NA (NA)**	pCi/L	06/22/17 11:01	13982-63-3	
Radium-228	EPA 904.0	**85.6 %REC +/- NA (NA) C:NA T:NA**	pCi/L	06/24/17 15:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-1S MSD **Lab ID: 60246016012** Collected: 06/07/17 11:27 Received: 06/08/17 04:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**84.82%REC 18.13RPD ± NA (NA)**	pCi/L	06/22/17 11:01	13982-63-3	
Radium-228	EPA 904.0	**87.0 %REC 1.56 RPD +/- NA (NA) C:NA T:NA**	pCi/L	06/24/17 15:38	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-BMW-3S **Lab ID: 60245853001** Collected: 06/05/17 14:07 Received: 06/07/17 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.434 ± 0.371 (0.503) C:NA T:99%**	pCi/L	06/20/17 20:21	13982-63-3	
Radium-228	EPA 904.0	**0.987 ± 0.368 (0.496) C:75% T:90%**	pCi/L	06/23/17 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-BMW-1S **Lab ID: 60245853002** Collected: 06/05/17 15:10 Received: 06/07/17 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.363 ± 0.421 (0.679) C:NA T:102%**	pCi/L	06/20/17 20:21	13982-63-3	
Radium-228	EPA 904.0	**0.471 ± 0.317 (0.597) C:78% T:87%**	pCi/L	06/23/17 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-4S **Lab ID: 60245853003** Collected: 06/06/17 14:15 Received: 06/07/17 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.113 ± 0.350 (0.796) C:NA T:95%**	pCi/L	06/20/17 20:21	13982-63-3	
Radium-228	EPA 904.0	**1.03 ± 0.405 (0.601) C:75% T:89%**	pCi/L	06/23/17 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-3S **Lab ID: 60245853004** Collected: 06/06/17 15:18 Received: 06/07/17 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.247 ± 0.351 (0.594) C:NA T:106%**	pCi/L	06/20/17 20:21	13982-63-3	
Radium-228	EPA 904.0	**0.819 ± 0.412 (0.721) C:75% T:88%**	pCi/L	06/23/17 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Sample: S-LMW-DUP-1 **Lab ID: 60245853005** Collected: 06/06/17 08:00 Received: 06/07/17 04:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.114 ± 0.352 (0.682) C:NA T:90%**	pCi/L	06/20/17 20:21	13982-63-3	
Radium-228	EPA 904.0	**0.637 ± 0.366 (0.662) C:78% T:84%**	pCi/L	06/23/17 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 261523 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

METHOD BLANK: 1287930 Matrix: Water
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.255 ± 0.234 (0.138) C:NA T:102%	pCi/L	06/20/17 20:21	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 261767 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010, 60246016011, 60246016012

METHOD BLANK: 1288849 Matrix: Water
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010, 60246016011, 60246016012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.221 ± 0.506 (1.12) C:75% T:76%	pCi/L	06/24/17 15:36	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 261746 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010, 60246016011, 60246016012

METHOD BLANK: 1288792 Matrix: Water
Associated Lab Samples: 60246016001, 60246016002, 60246016003, 60246016004, 60246016005, 60246016006, 60246016007, 60246016008, 60246016009, 60246016010, 60246016011, 60246016012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.356 ± 0.288 (0.161) C:NA T:89%	pCi/L	06/22/17 10:10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

QC Batch: 261754 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

METHOD BLANK: 1288829 Matrix: Water
Associated Lab Samples: 60245853001, 60245853002, 60245853003, 60245853004, 60245853005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.690 ± 0.358 (0.620) C:77% T:86%	pCi/L	06/23/17 11:51	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

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.

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.

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60245853001	**S-BMW-3S**	EPA 200.7	481055	EPA 200.7	481081
60245853002	**S-BMW-1S**	EPA 200.7	481289	EPA 200.7	481371
60245853003	**S-LMW-4S**	EPA 200.7	481289	EPA 200.7	481371
60245853004	**S-LMW-3S**	EPA 200.7	481289	EPA 200.7	481371
60245853005	**S-LMW-DUP-1**	EPA 200.7	481289	EPA 200.7	481371
60246016001	**S-LMW-1S**	EPA 200.7	481360	EPA 200.7	481503
60246016002	**S-LMW-2S**	EPA 200.7	481289	EPA 200.7	481371
60246016003	**S-LMW-5S**	EPA 200.7	481289	EPA 200.7	481371
60246016004	**S-LMW-6S**	EPA 200.7	481289	EPA 200.7	481371
60246016005	**S-LMW-7S**	EPA 200.7	481289	EPA 200.7	481371
60246016006	**S-LMW-8S**	EPA 200.7	481289	EPA 200.7	481371
60246016007	**S-LMW-9S**	EPA 200.7	481289	EPA 200.7	481371
60246016008	**S-LMW-DUP-2**	EPA 200.7	481289	EPA 200.7	481371
60246016009	**S-LMW-FB-1**	EPA 200.7	481289	EPA 200.7	481371
60246016010	**S-LMW-FB-2**	EPA 200.7	481289	EPA 200.7	481371
60245853001	**S-BMW-3S**	EPA 200.8	481057	EPA 200.8	481080
60245853002	**S-BMW-1S**	EPA 200.8	481290	EPA 200.8	481370
60245853003	**S-LMW-4S**	EPA 200.8	481290	EPA 200.8	481370
60245853004	**S-LMW-3S**	EPA 200.8	481290	EPA 200.8	481370
60245853005	**S-LMW-DUP-1**	EPA 200.8	481290	EPA 200.8	481370
60246016001	**S-LMW-1S**	EPA 200.8	481363	EPA 200.8	481509
60246016002	**S-LMW-2S**	EPA 200.8	481290	EPA 200.8	481370
60246016003	**S-LMW-5S**	EPA 200.8	481290	EPA 200.8	481370
60246016004	**S-LMW-6S**	EPA 200.8	481290	EPA 200.8	481370
60246016005	**S-LMW-7S**	EPA 200.8	481290	EPA 200.8	481370
60246016006	**S-LMW-8S**	EPA 200.8	481290	EPA 200.8	481370
60246016007	**S-LMW-9S**	EPA 200.8	481290	EPA 200.8	481370
60246016008	**S-LMW-DUP-2**	EPA 200.8	481290	EPA 200.8	481370
60246016009	**S-LMW-FB-1**	EPA 200.8	481290	EPA 200.8	481370
60246016010	**S-LMW-FB-2**	EPA 200.8	481290	EPA 200.8	481370
60245853001	**S-BMW-3S**	EPA 7470	482248	EPA 7470	482262
60245853002	**S-BMW-1S**	EPA 7470	482248	EPA 7470	482262
60245853003	**S-LMW-4S**	EPA 7470	482248	EPA 7470	482262
60245853004	**S-LMW-3S**	EPA 7470	482248	EPA 7470	482262
60245853005	**S-LMW-DUP-1**	EPA 7470	482248	EPA 7470	482262
60246016001	**S-LMW-1S**	EPA 7470	481494	EPA 7470	481550
60246016002	**S-LMW-2S**	EPA 7470	481494	EPA 7470	481550
60246016003	**S-LMW-5S**	EPA 7470	481494	EPA 7470	481550
60246016004	**S-LMW-6S**	EPA 7470	481494	EPA 7470	481550
60246016005	**S-LMW-7S**	EPA 7470	481494	EPA 7470	481550
60246016006	**S-LMW-8S**	EPA 7470	481494	EPA 7470	481550
60246016007	**S-LMW-9S**	EPA 7470	481494	EPA 7470	481550
60246016008	**S-LMW-DUP-2**	EPA 7470	481494	EPA 7470	481550
60246016009	**S-LMW-FB-1**	EPA 7470	481494	EPA 7470	481550

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60246016010	S-LMW-FB-2	EPA 7470	481494	EPA 7470	481550
60245853001	S-BMW-3S	EPA 903.1	261523		
60245853002	S-BMW-1S	EPA 903.1	261523		
60245853003	S-LMW-4S	EPA 903.1	261523		
60245853004	S-LMW-3S	EPA 903.1	261523		
60245853005	S-LMW-DUP-1	EPA 903.1	261523		
60246016001	S-LMW-1S	EPA 903.1	261746		
60246016002	S-LMW-2S	EPA 903.1	261746		
60246016003	S-LMW-5S	EPA 903.1	261746		
60246016004	S-LMW-6S	EPA 903.1	261746		
60246016005	S-LMW-7S	EPA 903.1	261746		
60246016006	S-LMW-8S	EPA 903.1	261746		
60246016007	S-LMW-9S	EPA 903.1	261746		
60246016008	S-LMW-DUP-2	EPA 903.1	261746		
60246016009	S-LMW-FB-1	EPA 903.1	261746		
60246016010	S-LMW-FB-2	EPA 903.1	261746		
60246016011	S-LMW-1S MS	EPA 903.1	261746		
60246016012	S-LMW-1S MSD	EPA 903.1	261746		
60245853001	S-BMW-3S	EPA 904.0	261754		
60245853002	S-BMW-1S	EPA 904.0	261754		
60245853003	S-LMW-4S	EPA 904.0	261754		
60245853004	S-LMW-3S	EPA 904.0	261754		
60245853005	S-LMW-DUP-1	EPA 904.0	261754		
60246016001	S-LMW-1S	EPA 904.0	261767		
60246016002	S-LMW-2S	EPA 904.0	261767		
60246016003	S-LMW-5S	EPA 904.0	261767		
60246016004	S-LMW-6S	EPA 904.0	261767		
60246016005	S-LMW-7S	EPA 904.0	261767		
60246016006	S-LMW-8S	EPA 904.0	261767		
60246016007	S-LMW-9S	EPA 904.0	261767		
60246016008	S-LMW-DUP-2	EPA 904.0	261767		
60246016009	S-LMW-FB-1	EPA 904.0	261767		
60246016010	S-LMW-FB-2	EPA 904.0	261767		
60246016011	S-LMW-1S MS	EPA 904.0	261767		
60246016012	S-LMW-1S MSD	EPA 904.0	261767		
60245853001	S-BMW-3S	SM 2540C	480117		
60245853002	S-BMW-1S	SM 2540C	480117		
60245853003	S-LMW-4S	SM 2540C	480253		
60245853004	S-LMW-3S	SM 2540C	480253		
60245853005	S-LMW-DUP-1	SM 2540C	480253		
60246016001	S-LMW-1S	SM 2540C	480655		
60246016002	S-LMW-2S	SM 2540C	480655		
60246016003	S-LMW-5S	SM 2540C	480655		
60246016004	S-LMW-6S	SM 2540C	480655		
60246016005	S-LMW-7S	SM 2540C	480655		

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60246016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60246016006	S-LMW-8S	SM 2540C	480655		
60246016007	S-LMW-9S	SM 2540C	480655		
60246016008	S-LMW-DUP-2	SM 2540C	480655		
60246016009	S-LMW-FB-1	SM 2540C	480719		
60246016010	S-LMW-FB-2	SM 2540C	480719		
60245853001	S-BMW-3S	SM 4500-H+B	480064		
60245853002	S-BMW-1S	SM 4500-H+B	480064		
60245853003	S-LMW-4S	SM 4500-H+B	480445		
60245853004	S-LMW-3S	SM 4500-H+B	480445		
60245853005	S-LMW-DUP-1	SM 4500-H+B	480363		
60246016001	S-LMW-1S	SM 4500-H+B	480652		
60246016002	S-LMW-2S	SM 4500-H+B	480652		
60246016003	S-LMW-5S	SM 4500-H+B	480652		
60246016004	S-LMW-6S	SM 4500-H+B	480652		
60246016005	S-LMW-7S	SM 4500-H+B	480678		
60246016006	S-LMW-8S	SM 4500-H+B	480652		
60246016007	S-LMW-9S	SM 4500-H+B	480652		
60246016008	S-LMW-DUP-2	SM 4500-H+B	480445		
60246016009	S-LMW-FB-1	SM 4500-H+B	480652		
60246016010	S-LMW-FB-2	SM 4500-H+B	480652		
60245853001	S-BMW-3S	EPA 300.0	480432		
60245853002	S-BMW-1S	EPA 300.0	480432		
60245853003	S-LMW-4S	EPA 300.0	480432		
60245853003	S-LMW-4S	EPA 300.0	480584		
60245853004	S-LMW-3S	EPA 300.0	480432		
60245853005	S-LMW-DUP-1	EPA 300.0	480432		
60246016001	S-LMW-1S	EPA 300.0	480615		
60246016002	S-LMW-2S	EPA 300.0	480615		
60246016003	S-LMW-5S	EPA 300.0	480615		
60246016004	S-LMW-6S	EPA 300.0	480615		
60246016005	S-LMW-7S	EPA 300.0	480615		
60246016005	S-LMW-7S	EPA 300.0	480760		
60246016006	S-LMW-8S	EPA 300.0	480615		
60246016007	S-LMW-9S	EPA 300.0	480615		
60246016008	S-LMW-DUP-2	EPA 300.0	480615		
60246016008	S-LMW-DUP-2	EPA 300.0	480760		
60246016009	S-LMW-FB-1	EPA 300.0	480615		
60246016010	S-LMW-FB-2	EPA 300.0	480615		

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60246016

60246016

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: CF +2.9 / CF +0.2 T-266 / (T-239) **Type of Ice** (Wet) Blue (None)

BB 6/8/17

Cooler Temperature (°C): **As-read** 12.0/13.4/3.8 **Corr. Factor** CF +2.9 CF +0.2 **Corrected** 12.2/13.6/4.0

Date and initials of person examining contents:

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	pH
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: SL	☐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	
Cyanide water sample checks: Lead acetate strip turns dark? (Record only) ☑N/A / Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No / ☐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 Check 6/9/17

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 2

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N							
1	S-LMW-1S	WT	G			6/7/17	1127		12	3		9							3	3	3	3	4			3 BPW			60246016 001
2	S-LMW-2S	WT	G				1020		4	1		3							1	1	1	1	2			BPW			2 BPW 1 BPW 002
3	~~S-LMW-3S~~	WT	G																										—
4	~~S-LMW-4S~~	WT	G																										—
5	S-LMW-5S	WT	G			6/7/17	1150		4	1		3							1	1	1	1	2						003
6	S-LMW-6S	WT	G				1235		4	1		3							1	1	1	1	2						004
7	S-LMW-7S	WT	G				1405		4	1		3							1	1	1	1	2						005
8	S-LMW-8S	WT	G				1400		4	1		2							1	1	1	1	2						006
9	S-LMW-9S	WT	G				0133		4	1		3							1	1	1	1	2						007
10	~~S-BMW-1S~~	WT	G																										—
11	~~S-BMW-3S~~	WT	G																										—
12	~~S-LMW-DUP-1~~	WT	G						10																				—

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: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Jeff Ingram / Golder	6/7/17	1600	Richard Manny Pace	6/7/17	1600				
				[illegible]	6/8/17	0410	12.2	N	Y	Y
							13.6	N	Y	Y
							4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 6/7/17

*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™
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: 2 of 2

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone:	636-724-9191 Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003B

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): Metals* N; Chloride/Fluoride/Sulfate N; TDS N; pH N; Radium 226 & 228 N

Pace Project No./ Lab I.D.: 60246016

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	S-LMW-DUP-2	WT	G			6/7/17	–		4	1		3							1	1	1	1	2	BPW		2BPW BP3N 008
2	S-LMW-FB-1	WT	G			↓	1312		4	1		3							1	1	1	1	2	↓		↓ ↓ 009
3	S-LMW-FB-2	WT	G			↓	1133		4	1		3							1	1	1	1	2	↓		↓ ↓ 010
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Jeff Ingram Golder	6/7/17	1600	[signature]	6/7/17	1600				
				[signature]	6/8/17	0410	12.2	N	Y	Y
							13.6	N	Y	Y
							4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Ingram

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 6/7/17

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 18, 2017

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60247466001	**S-BMW-3S**	Water	06/26/17 16:34	06/28/17 03:30

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60247466001	**S-BMW-3S**	EPA 200.7	SMW	8	PASI-K
		EPA 200.8	JGP	6	PASI-K
		EPA 7470	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Sample: S-BMW-3S **Lab ID: 60247466001** Collected: 06/26/17 16:34 Received: 06/28/17 03:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium	**152**	ug/L	5.0	0.91	1	06/28/17 16:50	06/30/17 19:34	7440-39-3	
Beryllium	**<0.16**	ug/L	1.0	0.16	1	06/28/17 16:50	06/30/17 19:34	7440-41-7	
Boron	**64.6J**	ug/L	100	3.5	1	06/28/17 16:50	06/30/17 19:34	7440-42-8	
Calcium	**121000**	ug/L	100	36.0	1	06/28/17 16:50	06/30/17 19:34	7440-70-2	
Cobalt	**1.2J**	ug/L	5.0	0.73	1	06/28/17 16:50	06/30/17 19:34	7440-48-4	
Lead	**<2.4**	ug/L	5.0	2.4	1	06/28/17 16:50	06/30/17 19:34	7439-92-1	
Lithium	**9.5J**	ug/L	10.0	2.9	1	06/28/17 16:50	06/30/17 19:34	7439-93-2	
Molybdenum	**3.1J**	ug/L	20.0	1.3	1	06/28/17 16:50	06/30/17 19:34	7439-98-7	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony	**0.055J**	ug/L	1.0	0.026	1	06/28/17 16:50	06/30/17 13:57	7440-36-0	
Arsenic	**0.41J**	ug/L	1.0	0.052	1	06/28/17 16:50	06/30/17 13:57	7440-38-2	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	06/28/17 16:50	06/30/17 13:57	7440-43-9	
Chromium	**0.14J**	ug/L	1.0	0.054	1	06/28/17 16:50	06/30/17 13:57	7440-47-3	B
Selenium	**0.22J**	ug/L	1.0	0.086	1	06/28/17 16:50	06/30/17 13:57	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	06/28/17 16:50	06/30/17 13:57	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.046**	ug/L	0.20	0.046	1	07/11/17 11:16	07/12/17 09:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**436**	mg/L	5.0	5.0	1		06/29/17 16:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		06/28/17 13:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.2**	mg/L	1.0	0.50	1		07/08/17 00:59	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.10	1		07/08/17 00:59	16984-48-8	
Sulfate	**23.8**	mg/L	2.0	1.0	2		07/08/17 11:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 484651 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60247466001

METHOD BLANK: 1985098 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.046	0.20	0.046	07/12/17 08:59	

LABORATORY CONTROL SAMPLE: 1985099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.4	88	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1985100 1985101

Parameter	Units	60247847002 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	4.7	4.4	94	89	75-125	5	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 483134
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60247466001

METHOD BLANK: 1979063 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	ug/L	<0.91	5.0	0.91	07/02/17 12:18	
Beryllium	ug/L	0.31J	1.0	0.16	07/02/17 12:18	
Boron	ug/L	<3.5	100	3.5	06/30/17 19:20	
Calcium	ug/L	<36.0	100	36.0	07/02/17 12:18	
Cobalt	ug/L	<0.73	5.0	0.73	06/30/17 19:20	
Lead	ug/L	<2.4	5.0	2.4	06/30/17 19:20	
Lithium	ug/L	<2.9	10.0	2.9	07/02/17 12:18	
Molybdenum	ug/L	<1.3	20.0	1.3	06/30/17 19:20	

LABORATORY CONTROL SAMPLE: 1979064

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	1000	1040	104	85-115	
Beryllium	ug/L	1000	993	99	85-115	
Boron	ug/L	1000	953	95	85-115	
Calcium	ug/L	10000	9710	97	85-115	
Cobalt	ug/L	1000	1040	104	85-115	
Lead	ug/L	1000	1050	105	85-115	
Lithium	ug/L	1000	1080	108	85-115	
Molybdenum	ug/L	1000	1050	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1979065 1979066

Parameter	Units	60247402001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	0.038 mg/L	1000	1000	1060	1050	103	101	70-130	2	20	
Beryllium	ug/L	ND	1000	1000	961	945	96	94	70-130	2	20	
Boron	ug/L	0.14 mg/L	1000	1000	1130	1120	99	98	70-130	1	20	
Calcium	ug/L	30.1 mg/L	10000	10000	39000	38200	89	82	70-130	2	20	
Cobalt	ug/L	ND	1000	1000	966	957	97	96	70-130	1	20	
Lead	ug/L	ND	1000	1000	929	920	93	92	70-130	1	20	
Lithium	ug/L	0.047 mg/L	1000	1000	1130	1110	109	107	70-130	2	20	
Molybdenum	ug/L	ND	1000	1000	1010	1000	101	100	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 483133 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60247466001

METHOD BLANK: 1979050 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	06/30/17 12:52	
Arsenic	ug/L	<0.052	1.0	0.052	06/30/17 12:52	
Cadmium	ug/L	<0.018	0.50	0.018	06/30/17 12:52	
Chromium	ug/L	0.087J	1.0	0.054	06/30/17 12:52	
Selenium	ug/L	<0.086	1.0	0.086	06/30/17 12:52	
Thallium	ug/L	<0.036	1.0	0.036	06/30/17 12:52	

LABORATORY CONTROL SAMPLE: 1979051

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.5	96	85-115	
Arsenic	ug/L	40	40.9	102	85-115	
Cadmium	ug/L	40	38.2	95	85-115	
Chromium	ug/L	40	40.2	100	85-115	
Selenium	ug/L	40	38.2	95	85-115	
Thallium	ug/L	40	36.7	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1979052 1979053

Parameter	Units	7568658001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.64J	40	40	38.0	38.4	93	94	70-130	1	20	
Arsenic	ug/L	0.38J	40	40	40.5	40.1	100	99	70-130	1	20	
Cadmium	ug/L	<0.089	40	40	35.1	34.9	88	87	70-130	1	20	
Chromium	ug/L	27.2	40	40	69.0	64.8	105	94	70-130	6	20	
Selenium	ug/L	<0.00043 mg/L	40	40	35.8	35.9	89	89	70-130	0	20	
Thallium	ug/L	0.00027J mg/L	40	40	39.0	38.9	97	97	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 483338 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60247466001

METHOD BLANK: 1979902 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/29/17 16:18	

LABORATORY CONTROL SAMPLE: 1979903

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	959	96	80-120	

SAMPLE DUPLICATE: 1979904

Parameter	Units	60247576002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	909	947	4	10	

SAMPLE DUPLICATE: 1979905

Parameter	Units	60247365002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	479	470	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 482985
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60247466001

SAMPLE DUPLICATE: 1978459

Parameter	Units	60246810003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.5	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 484403 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247466001

METHOD BLANK: 1984134 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	07/07/17 21:16	
Fluoride	mg/L	<0.10	0.20	0.10	07/07/17 21:16	

LABORATORY CONTROL SAMPLE: 1984135

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	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1984136 1984137

Parameter	Units	60247664001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	7.7	5	5	13.1	13.2	107	110	80-120	1	15	
Fluoride	mg/L	0.21	2.5	2.5	2.8	2.8	103	105	80-120	2	15	

MATRIX SPIKE SAMPLE: 1984138

Parameter	Units	60247665001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	3.9	5	8.8	99	80-120	
Fluoride	mg/L	ND	2.5	2.7	101	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 484481 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247466001

METHOD BLANK: 1984615 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.50	1.0	0.50	07/08/17 08:55	

LABORATORY CONTROL SAMPLE: 1984616

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1984617 1984618

Parameter	Units	60247465001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	26.4	10	10	36.3	35.5	99	91	80-120	2	15	

MATRIX SPIKE SAMPLE: 1984619

Parameter	Units	60247466001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	23.8	10	34.0	102	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Sample: S-BMW-3S **Lab ID: 60247466001** Collected: 06/26/17 16:34 Received: 06/28/17 03:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.316 ± 0.447 (0.758) C:NA T:93%**	pCi/L	07/12/17 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.281 ± 0.343 (0.723) C:80% T:99%**	pCi/L	07/17/17 18:39	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 264503 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60247466001

METHOD BLANK: 1302867 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.669 ± 0.359 (0.629) C:76% T:82%	pCi/L	07/17/17 15:54	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

QC Batch: 264096 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60247466001

METHOD BLANK: 1300978 Matrix: Water
Associated Lab Samples: 60247466001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.300 ± 0.314 (0.442) C:NA T:96%	pCi/L	07/12/17 11:06	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

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.

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR-FLY
Pace Project No.: 60247466

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60247466001	**S-BMW-3S**	EPA 200.7	483134	EPA 200.7	483166
60247466001	**S-BMW-3S**	EPA 200.8	483133	EPA 200.8	483165
60247466001	**S-BMW-3S**	EPA 7470	484651	EPA 7470	484817
60247466001	**S-BMW-3S**	EPA 903.1	264096		
60247466001	**S-BMW-3S**	EPA 904.0	264503		
60247466001	**S-BMW-3S**	SM 2540C	483338		
60247466001	**S-BMW-3S**	SM 4500-H+B	482985		
60247466001	**S-BMW-3S**	EPA 300.0	484403		
60247466001	**S-BMW-3S**	EPA 300.0	484481		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60247466

60247466

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: CF +2.9 / CF +0.2 T-266 / T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.4/14.0 **Corr. Factor** CF +2.9 CF +0.2 0 **Corrected** 1.4/14.2

Date and initials of person examining contents: PM 6/28/17

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	PH
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	
Cyanide water sample checks: ☑N/A 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 Check 6/28/17

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical
www.pacelabs.com

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mark Haddock (mhaddock@golder.com)	Attention:	
Address:	820 South Main Street, Suite 100	Copy To:	Jeffrey Ingram	Company Name:	
	St Charles, MO 63301			Address:	
Email To:	maddock@golder.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	636-724-9191 Fax: 636-724-9323	Project Name:	Ameren Sioux Energy Center - Fly Ash	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	Standard	Project Number:	153-1406.0003B	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	Metals*	Chloride/Fluoride/Sulfate	TDS	pH	Radium 226 & 228						Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	N	N						
1	S-BMW-3S	WT	G			6-26-17	1634		4	1		3							1	1	1	1	2						60247166
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			
*EPA 200.7: Ba, Be, B, Ca, Co, Pb, Li, Mo + EPA 7470A Hg EPA 200.8: Sb, As, Cd, Cr, Se, Tl	Golder	6-27-17	1200		6/28/17	0330	1.6 1.4.2	Y Y	Y Y	Y Y
								PG/RB		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan Feldmann

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 6-27-17

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 02, 2018

Mark Haddock
Golder Associates
820 S. Main St
Suite 100
Saint Charles, MO 63301

RE: Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Dear Mark Haddock:
Enclosed are the analytical results for sample(s) received by the laboratory between November 15, 2017 and November 16, 2017. 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, 1/2/18: Revised to split samples into client designated reports.

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
Jeffrey Ingram, Golder Associates
John Suozzi, Golder Associates

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60258162001	**S-LMW-1S**	Water	11/14/17 15:15	11/15/17 04:15
60258162002	**S-LMW-2S**	Water	11/14/17 13:05	11/15/17 04:15
60258162003	**S-LMW-3S**	Water	11/13/17 15:25	11/15/17 04:15
60258162004	**S-LMW-4S**	Water	11/13/17 16:25	11/15/17 04:15
60258162005	**S-LMW-5S**	Water	11/14/17 12:05	11/15/17 04:15
60258162006	**S-LMW-6S**	Water	11/14/17 11:00	11/15/17 04:15
60258162007	**S-LMW-7S**	Water	11/14/17 09:55	11/15/17 04:15
60258162008	**S-LMW-8S**	Water	11/14/17 09:00	11/15/17 04:15
60258162009	**S-BMW-1S**	Water	11/13/17 10:16	11/15/17 04:15
60258162010	**S-BMW-3S**	Water	11/13/17 09:26	11/15/17 04:15
60258162011	**S-LMW-DUP-1**	Water	11/13/17 09:26	11/15/17 04:15
60258162012	**S-LMW-DUP-2**	Water	11/13/17 09:26	11/15/17 04:15
60258162013	**S-LMW-FB-1**	Water	11/14/17 08:55	11/15/17 04:15
60258162014	**S-LMW-FB-2**	Water	11/14/17 10:50	11/15/17 04:15
60258367001	**S-LMW-9S**	Water	11/15/17 10:23	11/16/17 04:20

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60258162001	**S-LMW-1S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162002	**S-LMW-2S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162003	**S-LMW-3S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162004	**S-LMW-4S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162005	**S-LMW-5S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162006	**S-LMW-6S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162007	**S-LMW-7S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162008	**S-LMW-8S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162009	**S-BMW-1S**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162010	**S-BMW-3S**	EPA 200.7	TDS	7	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162011	**S-LMW-DUP-1**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162012	**S-LMW-DUP-2**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162013	**S-LMW-FB-1**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258162014	**S-LMW-FB-2**	EPA 200.7	TDS	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60258367001	**S-LMW-9S**	EPA 200.7	SMW	7	PASI-K
		SM 2320B	JSS	1	PASI-K
		SM 2540C	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-1S **Lab ID: 60258162001** Collected: 11/14/17 15:15 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**1390**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:19	7440-42-8	
Calcium	**98500**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:19	7440-70-2	
Iron	**<12.4**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:19	7439-89-6	
Magnesium	**27200**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:19	7439-95-4	
Manganese	**40.1**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:19	7439-96-5	
Potassium	**7410**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:19	7440-09-7	
Sodium	**28700**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:19	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**261**	mg/L	20.0	4.9	1		11/27/17 12:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**471**	mg/L	5.0	5.0	1		11/21/17 09:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**24.4**	mg/L	2.0	1.0	2		12/02/17 08:38	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	0.10	1		12/01/17 16:18	16984-48-8	
Sulfate	**113**	mg/L	10.0	5.0	10		12/02/17 09:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-2S **Lab ID: 60258162002** Collected: 11/14/17 13:05 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**11600**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:26	7440-42-8	
Calcium	**200000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:26	7440-70-2	
Iron	**166**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:26	7439-89-6	
Magnesium	**41000**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:26	7439-95-4	
Manganese	**500**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:26	7439-96-5	
Potassium	**6780**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:26	7440-09-7	
Sodium	**75700**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**340**	mg/L	20.0	4.9	1		11/27/17 12:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**958**	mg/L	5.0	5.0	1		11/21/17 09:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**156**	mg/L	20.0	10.0	20		12/02/17 11:20	16887-00-6	
Fluoride	**0.40**	mg/L	0.20	0.10	1		12/01/17 16:48	16984-48-8	
Sulfate	**268**	mg/L	20.0	10.0	20		12/02/17 11:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-3S **Lab ID: 60258162003** Collected: 11/13/17 15:25 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**303**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:28	7440-42-8	
Calcium	**153000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:28	7440-70-2	
Iron	**<12.4**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:28	7439-89-6	
Magnesium	**31900**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:28	7439-95-4	
Manganese	**5.8**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:28	7439-96-5	
Potassium	**4160**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:28	7440-09-7	
Sodium	**10700**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:28	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**430**	mg/L	20.0	4.9	1		11/21/17 11:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**545**	mg/L	5.0	5.0	1		11/17/17 16:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**29.6**	mg/L	2.0	1.0	2		12/02/17 11:35	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.10	1		12/01/17 17:03	16984-48-8	
Sulfate	**38.2**	mg/L	2.0	1.0	2		12/02/17 11:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-4S **Lab ID: 60258162004** Collected: 11/13/17 16:25 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**267**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:35	7440-42-8	
Calcium	**154000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:35	7440-70-2	
Iron	**<12.4**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:35	7439-89-6	
Magnesium	**37900**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:35	7439-95-4	
Manganese	**267**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:35	7439-96-5	
Potassium	**5090**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:35	7440-09-7	
Sodium	**13600**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:35	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**487**	mg/L	20.0	4.9	1		11/21/17 11:15		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**544**	mg/L	5.0	5.0	1		11/17/17 16:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.0**	mg/L	1.0	0.50	1		12/01/17 17:18	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.10	1		12/01/17 17:18	16984-48-8	
Sulfate	**34.6**	mg/L	2.0	1.0	2		12/02/17 12:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-5S **Lab ID: 60258162005** Collected: 11/14/17 12:05 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**8220**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:37	7440-42-8	
Calcium	**236000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:37	7440-70-2	
Iron	**99.5**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:37	7439-89-6	
Magnesium	**50400**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:37	7439-95-4	
Manganese	**1230**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:37	7439-96-5	
Potassium	**5770**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:37	7440-09-7	
Sodium	**89800**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:37	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**382**	mg/L	20.0	4.9	1		11/27/17 12:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1180**	mg/L	5.0	5.0	1		11/21/17 09:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**29.5**	mg/L	2.0	1.0	2		12/02/17 12:34	16887-00-6	
Fluoride	**0.51**	mg/L	0.20	0.10	1		12/01/17 17:33	16984-48-8	
Sulfate	**585**	mg/L	50.0	25.0	50		12/02/17 12:49	14808-79-8	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-6S **Lab ID: 60258162006** Collected: 11/14/17 11:00 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**18000**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:40	7440-42-8	
Calcium	**269000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:40	7440-70-2	
Iron	**34.1J**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:40	7439-89-6	
Magnesium	**62100**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:40	7439-95-4	
Manganese	**499**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:40	7439-96-5	
Potassium	**5350**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:40	7440-09-7	
Sodium	**99200**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:40	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**314**	mg/L	20.0	4.9	1		11/27/17 12:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1500**	mg/L	5.0	5.0	1		11/21/17 09:36		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.0**	mg/L	1.0	0.50	1		12/01/17 17:48	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.10	1		12/01/17 17:48	16984-48-8	
Sulfate	**792**	mg/L	100	50.0	100		12/02/17 13:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-7S **Lab ID: 60258162007** Collected: 11/14/17 09:55 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**2630**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:42	7440-42-8	
Calcium	**256000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:42	7440-70-2	
Iron	**32.1J**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:42	7439-89-6	
Magnesium	**73000**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:42	7439-95-4	
Manganese	**544**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:42	7439-96-5	
Potassium	**4510**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:42	7440-09-7	
Sodium	**18000**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:42	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**443**	mg/L	20.0	4.9	1		11/27/17 13:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1140**	mg/L	5.0	5.0	1		11/21/17 09:36		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**14.1**	mg/L	1.0	0.50	1		12/01/17 18:03	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	0.10	1		12/01/17 18:03	16984-48-8	
Sulfate	**519**	mg/L	50.0	25.0	50		12/02/17 13:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-8S **Lab ID: 60258162008** Collected: 11/14/17 09:00 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**6880**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:45	7440-42-8	
Calcium	**178000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:45	7440-70-2	
Iron	**17.8J**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:45	7439-89-6	
Magnesium	**40900**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:45	7439-95-4	
Manganese	**499**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:45	7439-96-5	
Potassium	**4260**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:45	7440-09-7	
Sodium	**60200**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:45	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**219**	mg/L	20.0	4.9	1		11/27/17 13:07		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**941**	mg/L	5.0	5.0	1		11/21/17 09:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**52.2**	mg/L	5.0	2.5	5		12/02/17 14:04	16887-00-6	
Fluoride	**0.89**	mg/L	0.20	0.10	1		12/01/17 18:47	16984-48-8	
Sulfate	**463**	mg/L	50.0	25.0	50		12/02/17 14:19	14808-79-8	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-BMW-1S **Lab ID: 60258162009** Collected: 11/13/17 10:16 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**118**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:47	7440-42-8	
Calcium	**156000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:47	7440-70-2	
Iron	**19.8J**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:47	7439-89-6	
Magnesium	**30900**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:47	7439-95-4	
Manganese	**580**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:47	7439-96-5	
Potassium	**395J**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:47	7440-09-7	
Sodium	**4850**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:47	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**448**	mg/L	20.0	4.9	1		11/27/17 08:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**526**	mg/L	5.0	5.0	1		11/17/17 16:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.7**	mg/L	1.0	0.50	1		12/01/17 19:02	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	0.10	1		12/01/17 19:02	16984-48-8	
Sulfate	**41.4**	mg/L	5.0	2.5	5		12/02/17 14:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-BMW-3S **Lab ID: 60258162010** Collected: 11/13/17 09:26 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**104**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:49	7440-42-8	
Calcium	**128000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:49	7440-70-2	
Iron	**516**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:49	7439-89-6	
Magnesium	**23800**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:49	7439-95-4	
Manganese	**782**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:49	7439-96-5	
Potassium	**664**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:49	7440-09-7	
Sodium	**4910**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:49	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**377**	mg/L	20.0	4.9	1		11/27/17 08:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**446**	mg/L	5.0	5.0	1		11/17/17 16:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.5**	mg/L	1.0	0.50	1		12/01/17 19:17	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.10	1		12/01/17 19:17	16984-48-8	
Sulfate	**28.2**	mg/L	2.0	1.0	2		12/02/17 14:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-DUP-1 **Lab ID: 60258162011** Collected: 11/13/17 09:26 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**2520**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:51	7440-42-8	
Calcium	**254000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:51	7440-70-2	
Iron	**20.1J**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:51	7439-89-6	
Magnesium	**71900**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:51	7439-95-4	
Manganese	**520**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:51	7439-96-5	
Potassium	**4380**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:51	7440-09-7	
Sodium	**17800**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**454**	mg/L	20.0	4.9	1		11/27/17 09:03		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1210**	mg/L	5.0	5.0	1		11/17/17 16:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**13.4**	mg/L	1.0	0.50	1		12/01/17 20:32	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.10	1		12/01/17 20:32	16984-48-8	
Sulfate	**507**	mg/L	50.0	25.0	50		12/02/17 15:03	14808-79-8	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-DUP-2 **Lab ID: 60258162012** Collected: 11/13/17 09:26 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**7980**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:54	7440-42-8	
Calcium	**229000**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:54	7440-70-2	
Iron	**78.8**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:54	7439-89-6	
Magnesium	**49700**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:54	7439-95-4	
Manganese	**1200**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:54	7439-96-5	
Potassium	**5760**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:54	7440-09-7	
Sodium	**87200**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:54	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**383**	mg/L	20.0	4.9	1		11/27/17 09:09		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1200**	mg/L	5.0	5.0	1		11/17/17 16:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**29.4**	mg/L	2.0	1.0	2		12/02/17 15:18	16887-00-6	
Fluoride	**0.59**	mg/L	0.20	0.10	1		12/01/17 21:16	16984-48-8	
Sulfate	**619**	mg/L	50.0	25.0	50		12/02/17 15:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-FB-1 **Lab ID: 60258162013** Collected: 11/14/17 08:55 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**38.9J**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 17:56	7440-42-8	B
Calcium	**51.6J**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 17:56	7440-70-2	
Iron	**<12.4**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 17:56	7439-89-6	
Magnesium	**<15.4**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 17:56	7439-95-4	
Manganese	**<1.8**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 17:56	7439-96-5	
Potassium	**<52.3**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 17:56	7440-09-7	
Sodium	**<28.4**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 17:56	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**7.1J**	mg/L	20.0	4.9	1		11/27/17 13:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/21/17 09:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		12/01/17 21:31	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		12/01/17 21:31	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		12/01/17 21:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-FB-2 **Lab ID: 60258162014** Collected: 11/14/17 10:50 Received: 11/15/17 04:15 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**19.3J**	ug/L	100	3.5	1	11/18/17 12:30	11/25/17 18:03	7440-42-8	B
Calcium	**<36.0**	ug/L	100	36.0	1	11/18/17 12:30	11/25/17 18:03	7440-70-2	
Iron	**<12.4**	ug/L	50.0	12.4	1	11/18/17 12:30	11/25/17 18:03	7439-89-6	
Magnesium	**<15.4**	ug/L	50.0	15.4	1	11/18/17 12:30	11/25/17 18:03	7439-95-4	
Manganese	**<1.8**	ug/L	5.0	1.8	1	11/18/17 12:30	11/25/17 18:03	7439-96-5	
Potassium	**<52.3**	ug/L	500	52.3	1	11/18/17 12:30	11/25/17 18:03	7440-09-7	
Sodium	**<28.4**	ug/L	500	28.4	1	11/18/17 12:30	11/25/17 18:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**<4.9**	mg/L	20.0	4.9	1		11/27/17 13:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		11/21/17 09:41		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.50**	mg/L	1.0	0.50	1		12/01/17 21:46	16887-00-6	
Fluoride	**<0.10**	mg/L	0.20	0.10	1		12/01/17 21:46	16984-48-8	
Sulfate	**<0.50**	mg/L	1.0	0.50	1		12/01/17 21:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Sample: S-LMW-9S **Lab ID: 60258367001** Collected: 11/15/17 10:23 Received: 11/16/17 04:20 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								
Boron	**1470**	ug/L	100	3.5	1	11/30/17 09:27	11/30/17 18:27	7440-42-8	
Calcium	**193000**	ug/L	100	36.0	1	11/30/17 09:27	11/30/17 18:27	7440-70-2	M1
Iron	**<12.4**	ug/L	50.0	12.4	1	11/30/17 09:27	11/30/17 18:27	7439-89-6	
Magnesium	**58300**	ug/L	50.0	15.4	1	11/30/17 09:27	11/30/17 18:27	7439-95-4	
Manganese	**814**	ug/L	5.0	1.8	1	11/30/17 09:27	11/30/17 18:27	7439-96-5	
Potassium	**5080**	ug/L	500	52.3	1	11/30/17 09:27	11/30/17 18:27	7440-09-7	
Sodium	**47900**	ug/L	500	28.4	1	11/30/17 09:27	11/30/17 18:27	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**356**	mg/L	20.0	4.9	1		11/28/17 11:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**997**	mg/L	5.0	5.0	1		11/21/17 13:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**89.6**	mg/L	10.0	5.0	10		12/03/17 14:15	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	0.10	1		12/02/17 15:59	16984-48-8	
Sulfate	**302**	mg/L	50.0	25.0	50		12/03/17 14:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 503849 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010, 60258162011, 60258162012, 60258162013, 60258162014

METHOD BLANK: 2063340 Matrix: Water
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010, 60258162011, 60258162012, 60258162013, 60258162014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	9.8J	100	3.5	11/25/17 16:54	
Calcium	ug/L	<36.0	100	36.0	11/25/17 16:54	
Iron	ug/L	<12.4	50.0	12.4	11/25/17 16:54	
Magnesium	ug/L	<15.4	50.0	15.4	11/25/17 16:54	
Manganese	ug/L	<1.8	5.0	1.8	11/25/17 16:54	
Potassium	ug/L	<52.3	500	52.3	11/25/17 16:54	
Sodium	ug/L	<28.4	500	28.4	11/25/17 16:54	

LABORATORY CONTROL SAMPLE: 2063341

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	994	99	85-115	
Calcium	ug/L	10000	10000	100	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	9910	99	85-115	
Manganese	ug/L	1000	1010	101	85-115	
Potassium	ug/L	10000	9890	99	85-115	
Sodium	ug/L	10000	9630	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2063342 2063343

Parameter	Units	60257953001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	115	1000	1000	1130	1130	102	101	70-130	0	20	
Calcium	ug/L	156000	10000	10000	165000	169000	89	124	70-130	2	20	
Iron	ug/L	1900	10000	10000	12000	12000	101	101	70-130	0	20	
Magnesium	ug/L	42200	10000	10000	52200	53200	100	110	70-130	2	20	
Manganese	ug/L	2210	1000	1000	3210	3250	100	104	70-130	1	20	
Potassium	ug/L	5820	10000	10000	15900	16000	101	102	70-130	1	20	
Sodium	ug/L	10600	10000	10000	20500	20700	99	101	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2063344 2063345

Parameter	Units	60258162001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1390	1000	1000	2380	2430	99	104	70-130	2	20	
Calcium	ug/L	98500	10000	10000	109000	110000	105	112	70-130	1	20	
Iron	ug/L	<12.4	10000	10000	10100	10200	101	102	70-130	1	20	
Magnesium	ug/L	27200	10000	10000	36900	37300	97	101	70-130	1	20	
Manganese	ug/L	40.1	1000	1000	1040	1050	100	101	70-130	1	20	
Potassium	ug/L	7410	10000	10000	17300	17400	99	100	70-130	1	20	
Sodium	ug/L	28700	10000	10000	38700	39000	100	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505291
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60258367001

METHOD BLANK: 2069506 Matrix: Water
Associated Lab Samples: 60258367001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	9.9J	100	3.5	11/30/17 18:23	
Calcium	ug/L	<36.0	100	36.0	11/30/17 18:23	
Iron	ug/L	<12.4	50.0	12.4	11/30/17 18:23	
Magnesium	ug/L	<15.4	50.0	15.4	11/30/17 18:23	
Manganese	ug/L	<1.8	5.0	1.8	11/30/17 18:23	
Potassium	ug/L	121J	500	52.3	11/30/17 18:23	
Sodium	ug/L	593	500	28.4	11/30/17 18:23	

LABORATORY CONTROL SAMPLE: 2069507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	10400	104	85-115	
Iron	ug/L	10000	10200	102	85-115	
Magnesium	ug/L	10000	10400	104	85-115	
Manganese	ug/L	1000	1040	104	85-115	
Potassium	ug/L	10000	10200	102	85-115	
Sodium	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2069508 2069509

Parameter	Units	60258367001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	1470	1000	1000	2380	2390	92	92	70-130	0	20	
Calcium	ug/L	193000	10000	10000	195000	196000	15	30	70-130	1	20	M1
Iron	ug/L	<12.4	10000	10000	9580	9690	96	97	70-130	1	20	
Magnesium	ug/L	58300	10000	10000	66500	66100	82	78	70-130	1	20	
Manganese	ug/L	814	1000	1000	1760	1760	94	95	70-130	0	20	
Potassium	ug/L	5080	10000	10000	14500	14600	94	95	70-130	1	20	
Sodium	ug/L	47900	10000	10000	56000	56200	81	83	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504168 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60258162003, 60258162004

METHOD BLANK: 2065064 Matrix: Water
Associated Lab Samples: 60258162003, 60258162004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.9	20.0	4.9	11/21/17 10:11	

LABORATORY CONTROL SAMPLE: 2065065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	455	91	90-110	

SAMPLE DUPLICATE: 2065066

Parameter	Units	60258160003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	146	151	3	10	

SAMPLE DUPLICATE: 2065067

Parameter	Units	60258160004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	191	189	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504603 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60258162009, 60258162010, 60258162011, 60258162012

METHOD BLANK: 2067454 Matrix: Water
Associated Lab Samples: 60258162009, 60258162010, 60258162011, 60258162012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.9	20.0	4.9	11/27/17 08:42	

LABORATORY CONTROL SAMPLE: 2067455

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	496	99	90-110	

SAMPLE DUPLICATE: 2067456

Parameter	Units	60258162010 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	377	361	4	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504644 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60258162001

METHOD BLANK: 2067574 Matrix: Water
Associated Lab Samples: 60258162001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.9	20.0	4.9	11/27/17 10:18	

LABORATORY CONTROL SAMPLE: 2067575

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	492	98	90-110	

SAMPLE DUPLICATE: 2067576

Parameter	Units	60258156006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	416	431	3	10	

SAMPLE DUPLICATE: 2067577

Parameter	Units	60258160001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	207	217	5	10	

SAMPLE DUPLICATE: 2067578

Parameter	Units	60258162001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	261	269	3	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504707 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60258162002, 60258162005, 60258162006, 60258162007, 60258162008, 60258162013, 60258162014

METHOD BLANK: 2067688 Matrix: Water
Associated Lab Samples: 60258162002, 60258162005, 60258162006, 60258162007, 60258162008, 60258162013, 60258162014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.9	20.0	4.9	11/27/17 12:36	

LABORATORY CONTROL SAMPLE: 2067689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	491	98	90-110	

SAMPLE DUPLICATE: 2067690

Parameter	Units	60258162002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	340	324	5	10	

SAMPLE DUPLICATE: 2067691

Parameter	Units	60258162013 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	7.1J	<4.9		10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504908 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60258367001

METHOD BLANK: 2068151 Matrix: Water
Associated Lab Samples: 60258367001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<4.9	20.0	4.9	11/28/17 10:39	

LABORATORY CONTROL SAMPLE: 2068152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	498	100	90-110	

SAMPLE DUPLICATE: 2068153

Parameter	Units	60258128001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	1300	1260	2	10	

SAMPLE DUPLICATE: 2068154

Parameter	Units	60258414001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	172	170	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 503799 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60258162003, 60258162004, 60258162009, 60258162010, 60258162011, 60258162012

METHOD BLANK: 2062903 Matrix: Water
Associated Lab Samples: 60258162003, 60258162004, 60258162009, 60258162010, 60258162011, 60258162012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/17/17 15:33	

LABORATORY CONTROL SAMPLE: 2062904

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	988	99	80-120	

SAMPLE DUPLICATE: 2062905

Parameter	Units	60258160003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1060	8	10	

SAMPLE DUPLICATE: 2062906

Parameter	Units	60258162004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	544	546	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504121 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60258162001, 60258162002, 60258162005, 60258162006, 60258162007

METHOD BLANK: 2064804 Matrix: Water
Associated Lab Samples: 60258162001, 60258162002, 60258162005, 60258162006, 60258162007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/21/17 09:15	

LABORATORY CONTROL SAMPLE: 2064805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	964	96	80-120	

SAMPLE DUPLICATE: 2064806

Parameter	Units	60258156006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	528	547	3	10	

SAMPLE DUPLICATE: 2064807

Parameter	Units	60258160001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	318	313	2	10	

SAMPLE DUPLICATE: 2064808

Parameter	Units	60258162001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	471	474	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504123 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60258162008, 60258162013, 60258162014

METHOD BLANK: 2064813 Matrix: Water
Associated Lab Samples: 60258162008, 60258162013, 60258162014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/21/17 09:37	

LABORATORY CONTROL SAMPLE: 2064814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	985	99	80-120	

SAMPLE DUPLICATE: 2064815

Parameter	Units	60258414002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	869	865	0	10	

SAMPLE DUPLICATE: 2064816

Parameter	Units	60258414003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	880	891	1	10	

SAMPLE DUPLICATE: 2064817

Parameter	Units	60258414005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1130	1130	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 504283
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60258367001

METHOD BLANK: 2065519 Matrix: Water
Associated Lab Samples: 60258367001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	11/21/17 13:51	

LABORATORY CONTROL SAMPLE: 2065520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	970	97	80-120	

SAMPLE DUPLICATE: 2065521

Parameter	Units	60258458003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	472	478	1	10	

SAMPLE DUPLICATE: 2065522

Parameter	Units	60258367001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	997	980	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505276 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010

METHOD BLANK: 2069448 Matrix: Water
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/01/17 20:02	
Fluoride	mg/L	<0.10	0.20	0.10	12/01/17 20:02	

LABORATORY CONTROL SAMPLE: 2069449

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	2.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2069450 2069451

Parameter	Units	60258160001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.41	2.5	2.5	2.8	2.6	96	89	80-120	7	15	

MATRIX SPIKE SAMPLE: 2069452

Parameter	Units	60258162001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.41	2.5	2.9	98	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505538 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60258162011, 60258162012, 60258162013, 60258162014

METHOD BLANK: 2070522 Matrix: Water
Associated Lab Samples: 60258162011, 60258162012, 60258162013, 60258162014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/01/17 07:44	
Fluoride	mg/L	<0.10	0.20	0.10	12/01/17 07:44	
Sulfate	mg/L	<0.50	1.0	0.50	12/01/17 07:44	

LABORATORY CONTROL SAMPLE: 2070523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2070524 2070525

Parameter	Units	60258162011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.4	5	5	19.1	19.2	115	116	80-120	0	15	
Fluoride	mg/L	0.29	2.5	2.5	2.6	2.6	94	94	80-120	0	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505542 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60258367001

METHOD BLANK: 2070541 Matrix: Water
Associated Lab Samples: 60258367001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	<0.10	0.20	0.10	12/02/17 12:27	

LABORATORY CONTROL SAMPLE: 2070542

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2070543 2070544

Parameter	Units	60258236001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.11J	2.5	2.5	2.6	2.6	98	100	80-120	1	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505662 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010, 60258162011, 60258162012

METHOD BLANK: 2071159 Matrix: Water
Associated Lab Samples: 60258162001, 60258162002, 60258162003, 60258162004, 60258162005, 60258162006, 60258162007, 60258162008, 60258162009, 60258162010, 60258162011, 60258162012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/02/17 08:08	
Sulfate	mg/L	<0.50	1.0	0.50	12/02/17 08:08	

LABORATORY CONTROL SAMPLE: 2071160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2071161 2071162

Parameter	Units	60258162001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	24.4	10	10	35.2	34.9	108	105	80-120	1	15	
Sulfate	mg/L	113	50	50	160	160	94	93	80-120	0	15	

MATRIX SPIKE SAMPLE: 2071163

Parameter	Units	60258162004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	34.6	10	44.5	99	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

QC Batch: 505711 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60258367001

METHOD BLANK: 2071675 Matrix: Water
Associated Lab Samples: 60258367001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	12/03/17 07:56	
Sulfate	mg/L	<0.50	1.0	0.50	12/03/17 07:56	

LABORATORY CONTROL SAMPLE: 2071676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2071677 2071678

Parameter	Units	60258265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	20.4	10	10	30.1	30.5	98	102	80-120	1	15	

MATRIX SPIKE SAMPLE: 2071679

Parameter	Units	60258414001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	ND	5	5.3	88	80-120	
Sulfate	mg/L	543	250	792	100	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

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.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60258162001	**S-LMW-1S**	EPA 200.7	503849	EPA 200.7	503865
60258162002	**S-LMW-2S**	EPA 200.7	503849	EPA 200.7	503865
60258162003	**S-LMW-3S**	EPA 200.7	503849	EPA 200.7	503865
60258162004	**S-LMW-4S**	EPA 200.7	503849	EPA 200.7	503865
60258162005	**S-LMW-5S**	EPA 200.7	503849	EPA 200.7	503865
60258162006	**S-LMW-6S**	EPA 200.7	503849	EPA 200.7	503865
60258162007	**S-LMW-7S**	EPA 200.7	503849	EPA 200.7	503865
60258162008	**S-LMW-8S**	EPA 200.7	503849	EPA 200.7	503865
60258162009	**S-BMW-1S**	EPA 200.7	503849	EPA 200.7	503865
60258162010	**S-BMW-3S**	EPA 200.7	503849	EPA 200.7	503865
60258162011	**S-LMW-DUP-1**	EPA 200.7	503849	EPA 200.7	503865
60258162012	**S-LMW-DUP-2**	EPA 200.7	503849	EPA 200.7	503865
60258162013	**S-LMW-FB-1**	EPA 200.7	503849	EPA 200.7	503865
60258162014	**S-LMW-FB-2**	EPA 200.7	503849	EPA 200.7	503865
60258367001	**S-LMW-9S**	EPA 200.7	505291	EPA 200.7	505358
60258162001	**S-LMW-1S**	SM 2320B	504644		
60258162002	**S-LMW-2S**	SM 2320B	504707		
60258162003	**S-LMW-3S**	SM 2320B	504168		
60258162004	**S-LMW-4S**	SM 2320B	504168		
60258162005	**S-LMW-5S**	SM 2320B	504707		
60258162006	**S-LMW-6S**	SM 2320B	504707		
60258162007	**S-LMW-7S**	SM 2320B	504707		
60258162008	**S-LMW-8S**	SM 2320B	504707		
60258162009	**S-BMW-1S**	SM 2320B	504603		
60258162010	**S-BMW-3S**	SM 2320B	504603		
60258162011	**S-LMW-DUP-1**	SM 2320B	504603		
60258162012	**S-LMW-DUP-2**	SM 2320B	504603		
60258162013	**S-LMW-FB-1**	SM 2320B	504707		
60258162014	**S-LMW-FB-2**	SM 2320B	504707		
60258367001	**S-LMW-9S**	SM 2320B	504908		
60258162001	**S-LMW-1S**	SM 2540C	504121		
60258162002	**S-LMW-2S**	SM 2540C	504121		
60258162003	**S-LMW-3S**	SM 2540C	503799		
60258162004	**S-LMW-4S**	SM 2540C	503799		
60258162005	**S-LMW-5S**	SM 2540C	504121		
60258162006	**S-LMW-6S**	SM 2540C	504121		
60258162007	**S-LMW-7S**	SM 2540C	504121		
60258162008	**S-LMW-8S**	SM 2540C	504123		
60258162009	**S-BMW-1S**	SM 2540C	503799		
60258162010	**S-BMW-3S**	SM 2540C	503799		
60258162011	**S-LMW-DUP-1**	SM 2540C	503799		
60258162012	**S-LMW-DUP-2**	SM 2540C	503799		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AMEREN SIOUX ENERGY CTR- FLY
Pace Project No.: 60258162

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60258162013	**S-LMW-FB-1**	SM 2540C	504123		
60258162014	**S-LMW-FB-2**	SM 2540C	504123		
60258367001	**S-LMW-9S**	SM 2540C	504283		
60258162001	**S-LMW-1S**	EPA 300.0	505276		
60258162001	**S-LMW-1S**	EPA 300.0	505662		
60258162002	**S-LMW-2S**	EPA 300.0	505276		
60258162002	**S-LMW-2S**	EPA 300.0	505662		
60258162003	**S-LMW-3S**	EPA 300.0	505276		
60258162003	**S-LMW-3S**	EPA 300.0	505662		
60258162004	**S-LMW-4S**	EPA 300.0	505276		
60258162004	**S-LMW-4S**	EPA 300.0	505662		
60258162005	**S-LMW-5S**	EPA 300.0	505276		
60258162005	**S-LMW-5S**	EPA 300.0	505662		
60258162006	**S-LMW-6S**	EPA 300.0	505276		
60258162006	**S-LMW-6S**	EPA 300.0	505662		
60258162007	**S-LMW-7S**	EPA 300.0	505276		
60258162007	**S-LMW-7S**	EPA 300.0	505662		
60258162008	**S-LMW-8S**	EPA 300.0	505276		
60258162008	**S-LMW-8S**	EPA 300.0	505662		
60258162009	**S-BMW-1S**	EPA 300.0	505276		
60258162009	**S-BMW-1S**	EPA 300.0	505662		
60258162010	**S-BMW-3S**	EPA 300.0	505276		
60258162010	**S-BMW-3S**	EPA 300.0	505662		
60258162011	**S-LMW-DUP-1**	EPA 300.0	505538		
60258162011	**S-LMW-DUP-1**	EPA 300.0	505662		
60258162012	**S-LMW-DUP-2**	EPA 300.0	505538		
60258162012	**S-LMW-DUP-2**	EPA 300.0	505662		
60258162013	**S-LMW-FB-1**	EPA 300.0	505538		
60258162014	**S-LMW-FB-2**	EPA 300.0	505538		
60258367001	**S-LMW-9S**	EPA 300.0	505542		
60258367001	**S-LMW-9S**	EPA 300.0	505711		

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60258162

60258162

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-266 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 4.8 3.4 2.8 **Corr. Factor** +0.0 **Corrected** 4.8 3.4 2.8

Date and initials of person examining contents: JB 11/16

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	
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: _____

Jann Check 11/16/17

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical™ www.pacelabs.com

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003F

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	Metals*	Cl/F/SO4/Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N		62258162
1	S-LMW-1S	WT	G			11/14/17	1515		6	3		3							3	3	3		(3) BP1N (3) BP3N 001
2	S-LMW-2S	WT	G			11/14/17	1305		2	1		1							1	1	1		BP1N BP3N 002
3	S-LMW-3S	WT	G			11/13/17	1526																003
4	S-LMW-4S	WT	G			11/13/17	1625																004
5	S-LMW-5S	WT	G			11/14/17	1205																005
6	S-LMW-6S	WT	G			11/14/17	1100																006
7	S-LMW-7S	WT	G			11/14/17	0955																007
8	S-LMW-8S	WT	G			11/14/17	0900																008
9	[redacted]	WT	G																				
10	S-BMW-1S	WT	G			11/13/17	1016		2	1		1							1	1	1		009
11	S-BMW-3S	WT	G			11/13/17	0926																010
12	S-LMW-DUP-1	WT	G			11/14/17	—																011

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*EPA 200.7: B,Ca,Mg,K,Na,Fe,Mn	Bri Works / Golder	11/14/17	1640		11/14/17	1640
		11/14/17	1700		11/15	0415

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	4.8	Y	Y	Y
	3.6	Y	Y	Y
	2.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Bri Works

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/14/17

*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

Pace Analytical
www.pacelabs.com

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100, St Charles, MO 63301
Email To:	maddock@golder.com
Phone:	636-724-9191
Fax:	636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003F

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Jamie Church
Pace Profile #:	9285

REGULATORY AGENCY: NPDES / X GROUND WATER / DRINKING WATER / UST / RCRA / OTHER ____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WP, AR, OT, TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N N N N N

Pace Project No./Lab I.D.: 60258162

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Metals*	Cl/F/SO4/Alkalinity	TDS	Residual Chlorine (Y/N)	Pace Project No./Lab I.D.
1	S-LMW-DUP-2					11/14/17	[illegible]		2	1		1						1	1	1		BP1U BP3N 012
2	S-LMW-FB-1					11/14/17	0855		1	1		1						1	1	1		013
3	S-LMW-FB-2					11/14/17	1050		1	1		1						1	1	1		014
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: B,Ca,Mg,K,Na,Fe,Mn	[signature] / Golder	11/14/17	1640	[signature]	11/14/17	1640				
	[signature]	11/14/17	1700	[signature]	11/15	0415	4.8	Y	Y	Y
							3.6	Y	Y	Y
							2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Bri Works

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 11/14/17

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60258367

60258367

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: CF 0.0 T-266 / CF +0.2 T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 0.1 **Corr. Factor** CF 0.0 CF +0.2 **Corrected** 0.1

0420

Date and initials of person examining contents: PL 11/17/17

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): PL 11/17	☑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:	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐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 Check 11/18/17

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:

Company:	Golder Associates
Address:	820 South Main Street, Suite 100
	St Charles, MO 63301
Email To:	maddock@golder.com
Phone: 636-724-9191	Fax: 636-724-9323
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Mark Haddock (mhaddock@golder.com)
Copy To:	Jeffrey Ingram
Purchase Order No.:	
Project Name:	Ameren Sioux Energy Center - Fly Ash
Project Number:	153-1406.0003F

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	Metals*	Cl/F/SO4/Alkalinity	TDS								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	N								
1	~~S-LMW-1S~~	WT	G																											
2	~~S-LMW-2S~~	WT	G																											
3	~~S-LMW-3S~~	WT	G																											
4	~~S-LMW-4S~~	WT	G																											
5	~~S-LMW-5S~~	WT	G																											
6	~~S-LMW-6S~~	WT	G																											
7	~~S-LMW-7S~~	WT	G																											
8	~~S-LMW-8S~~	WT	G																											
9	S-LMW-9S	WT	G			11/15/17	1023		2	1		1							1	1	1									60258367 BB3N2-0 1BP1U 001
10	~~S-BMW-1S~~	WT	G																											
11	~~S-BMW-3S~~	WT	G																											
12	~~S-LMW-DUP-1~~	WT	G																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*EPA 200.7: B,Ca,Mg,K,Na,Fe,Mn	Golder	11/15/17	1415		11/15/17	1415				
		11/15/17	1700		11/16/17	0420	0.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Bri Works

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/15/17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

MEMORANDUM

Date:	January 16, 2018	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.1**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Calcium exceeded the recovery criteria low for MS of samples S-LMW-1S and S-LMW-4S associated with project number 60215288. Data was not qualified on MS/MSD data alone.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux-Fly-E1
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406
Validation Date: 1/16/18

Laboratory: Pace Analytical
SDG #: 60215292
Analytical Method (type and no.): EPA 200.7, 200.8, 7470, 903.1, 904.0, 300.0 ; SM 2540C, 4500-H+B
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S,
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-4S MS, S-LMW-4S MSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (2)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	[Ca] LMW-4S, -1S

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	See Notes
b) Were analytes detected in the field blank(s)?	☑	☐	☐	[Ca] LMW-FB-1, FB-2
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☑	☐	☐	S-LMW-DUP-2 @ LMW-15
				S-LMW-DUP-1 @ LMW-35
b) Were field dup. precision criteria met (note RPD)?	☑	☐	☐	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑ TG	☑	☐	TDS precision exceeded lab control limits

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	[Ca] Below % Rec Limit
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☐	☑	☐	[Ca] Below % Rec Limit
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

[Si]+[Cd] were seen in ~~multiple~~ TG method blanks ; Ca(38.0) 0.061 0.032

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-FB-1	Ca	~~81~~ 100	U	Detected in Blank, Result between MDL + PQL
S-LMW-FB-2	Ca	~~81~~ 100	U	
S-LMW-2S	Sb	0.058	U	
S-LMW-8S	~~Cd~~ TA Sb	⊥	U	
S-LMW-4S	Sb	⊥	U	
	Cd	0.029	U	
S-LMW-5S	Sb	0.058	U	
	Cd	0.029	U	
S-LMW-6S	Sb	0.058	U	
S-LMW-7S	Sb	⊥	U	
	Cd	0.029	U	
S-BMW-1S	Sb	0.058	U	
	Cd	0.029	U	
S-LMW-1S	~~Cd~~ TA Sb	~~0.058~~ 1.0	U	~~Cd~~ TA
	~~Sb~~ TA Cd	0.029	U	⊥
	Se	0.24	J	Field Dup RPD not met, Result was <5x PQL
S-LMW-3S	Sb	0.058	U	Detected in blank, Result between MDL + PQL
	Cd	0.029	U	⊥
	Mo	2.0	J	Field Dup RPD not met, Result was <5x PQL
S-LMW-DUP-1	Sb	0.058	U	Detected in blank, Result between MDL + PQL
	Cd	0.029	U	⊥
	Mo	~~0.58~~ 1.0 TA	J	Field Dup RPD not met, Result was <5x PQL
S-LMW-DUP-2	Sb	0.058	U	Detected in blank, Result between MDL + PQL
	Cd	0.029	U	⊥
	~~As~~ TA Se	0.18	UJ	Field Dup RPD not met, Result was < MDL
See Next Page				

Signature: Tommy J Gordon Jr Date: 2/16/2018

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification: SCPB E1

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chloride	19.1	D	Result had a dilution factor of 2
⊥	Sulfate	114		10
S-LMW-2S	Chloride	77.2		10
⊥	Sulfate	338		20
S-LMW-3S	Chloride	26.4		2
⊥	Sulfate	39.2		5
S-LMW-4S	Sulfate	30.0		2
S-LMW-5S	Chloride	32.9		2
⊥	Sulfate	842		100
S-LMW-6S	Sulfate	991		100
S-LMW-7S	Chloride	19.0		2
⊥	Sulfate	337		20
S-LMW-8S	Chloride	39.3		5
⊥	Sulfate	386		20
S-LMW-9S	Chloride	88.6		20
⊥	Sulfate	316		20
S-BMW-1S	Sulfate	27.8		2
S-LMW-DUP-1	Chloride	28.1		2
⊥	Sulfate	40.1		5
S-LMW-DUP-2	Chloride	18.8		2
⊥	Sulfate	114		20
				Ta

Signature: Tommy Isbell

Date: 1/16/2018

MEMORANDUM

Date:	January 16, 2018	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.2**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were greater than the method detection limit and below the PQL the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren - Sioux - Fly - E2
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003B
Validation Date: 1/16/18

Laboratory: Pace Analytical; PAS1-K, PAS17PA
SDG #: 60219086
Analytical Method (type and no.): Metals 200.7, Metals 200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rad 903.1 + 904.0
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S,
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-4S-MS, S-LMW-4SMSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YE	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☐	☑	☐	

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were analytes detected in the method blank(s)?	☑	☐	☐	[Mo] (0.57) Ca (11.5)
b) Were analytes detected in the field blank(s)?	☑	☐	☐	[Ca] FB-1, FB-2
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	↖Cr (0.59) ↖Cr (0.44)
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	Ca (24.4) Ca (12.6)

Laboratory Control Sample (LCS)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	**YES**	**NO**	**NA**	**COMMENTS**
a) Were field duplicates collected (note original and duplicate sample names)?	☑	☐	☐	LMW-1S→DUP-2, LMW-3S→DUP-1; (TA) FB-1 @ LMW-5S, FB-2 @ LMW-6
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	~~DUP-1: As, Cr;~~ DUP-2: Cr (30.4), ~~TDS~~, F, S (TA); DUP-1: As (20.8), Cr: (30.8); ~~Dup~~ (TA)
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	TDS only
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	

Blind Standards	**YES**	**NO**	**NA**	**COMMENTS**
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was MS accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chloride	21.6	D	Result had dilution factor (DF) of 2
"	Sulfate	131		10
S-LMW-2S	Chloride	61.6		5
"	Sulfate	371		50
S-LMW-3S	Chloride	21.6		2
⊥	Sulfate	38.4	⊥	2
⊥	Chromium (Cr)	1.3	J	RPD exceeded limit; Result > PQL+MDL
S-LMW-4S	Sulfate	33.4	D	Result had DF of 5
S-LMW-5S	Chloride	29.9		5
⊥	Sulfate	812	⊥	100
⊥	Cr	1.0	U	Detected in Field Blank; Result < PQL
S-LMW-3S	Molybdenum (Mo)	20.0	U	Detected in Method Blank (MB); Result < PQL
S-LMW-4S	Mo	20.0	"	" "
S-LMW-6S	"	20.0	⊥	⊥ ⊥
⊥	Cr	1.0	U	Detected in FB; PQL > Result > MDL
⊥	Sulfate	880	D	Result had DF of 100
S-LMW-7S	"	301	"	" 50
"	Mo	20.0	U	Detected in MB; PQL > Result > MDL
S-LMW-8S	Chloride	36.0	D	Result had DF of 5
"	Sulfate	368		50
S-LMW-9S	Chloride	85.7		10
"	Sulfate	328		50
S-BMW-1S	Sulfate	26.2	⊥	2
"	Mo	20.0	U	Detected in MB; PQL > Result > MDL

Signature: Tommy J. Stroh Jr. Date: 1/16/2018

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-DUP-1	Chloride	22.2	D	Result had DF of 2
	Sulfate	38.7	"	" 2
⊥	Mo	20.0	U	Detected in MB; PQL>Result> MDL
S-LMW-DUP-2	Chloride	21.6	D	Result had DF of 2
"	Sulfate	134	"	" 10
S-LMW-FB-1	~~Mo~~ Calcium (Ca)	100	U	Detected in MB; PQL>Result> MDL
S-LMW-FB-2	Ca	100	"	" "
				TB

Signature: Tommy Doorbar Date: 1/16/2018

MEMORANDUM

Date:	January 16, 2018	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.3**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit the results were qualified as non-detects and estimates (UJ).
- When the RPD of a MS/MSD was not met, but corresponding RPD of the LCS was met, M1 or R1 qualifiers on associated sample analytes were removed.

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren - Sioux, ES - Fly
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003B
Validation Date: 1/16/18

Laboratory: Pace Analytical: PASI-K, PASI-PA
SDG #: 60223195
Analytical Method (type and no.): Metals 200.7+200.8, Hg 7470, TDS 2540C, pH 4500 H+, Anions 300.0, Rad 903.1+904.0
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S S-LMW-9S, S-BMW-1S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S MS, S-LMW-1S MSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	JS+RJF
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (12)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	Ca + [S-BMW-1S, 200.7]

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Ca
b) Were analytes detected in the field blank(s)?	☑	☐	☐	Ca
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				S-LMW-DUP-1 @ LMW-6S
	☑	☐	☐	S-LMW-DUP-2 @ LMW-7S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	Cd: Dup-1
c) Were lab duplicates analyzed (note original and duplicate samples)?				
	☑	☐	☐	TDS
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca: % Rec High
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
c) Were MS/MSD precision criteria met?	☐	☑	☐	Se

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Se	11.7	—	Analyte not flagged on MS/MSD alone
S-LMW-FB-1	Ca	72.0	U	Detected in blank, result below ~~RL~~ PQL
S-LMW-FB-2	"	58.5	"	"
S-LMW-6S	Cd	1.6	J	Field Dup RPD not met, result above PQL
S-LMW-DUP-1	Cd	0.85	"	"
D's S-LMW-1S	Chloride	26.0	D	Result had a dilution factor (DF) of 2
"	Sulfate	431		50
S-LMW-2S	Chloride	87.8		10
"	Sulfate	260		20
S-LMW-5S	Chloride	31.0		2
"	Sulfate	790		100
S-LMW-6S		858		100
S-BMW-1S		30.2		2
S-LMW-8S	"	39.8		5
"	Sulfate	361		50
S-LMW-9S	Chloride	81.1		10
"	~~Chloride~~ Sulfate	320		50
S-LMW-DUP-1		870		100
S-LMW-3S		34.1		5
S-LMW-4S		25.0		2
S-LMW-7S		313		50
S-LMW-DUP-2		303		20

Signature: Tommy J Gordon Jr Date: 1/16/2018

MEMORANDUM

Date:	April 10, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.4**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Calcium exceeded the recovery criteria low for MS of sample S-DG-1. Data was not qualified on MS/MSD data alone.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit or detected in a blank the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren Sioux - Fly-E4
Project Number: 1531406.0003B
Reviewer: T Goodwin
Validation Date: 4/10/2017

Laboratory: Pace Analytical
SDG #: 60227901 (TG)
Analytical Method (type and no.): Metals 200.7+200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1+904.0
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-8SMS, S-LMW-8SMSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (TG)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	Ca

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	(0.95) (1.0) Ba, Mo
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-2: Ca, Sulfate, FB-1: Cr, Ca (52.5) (0.83) (0.57) (28.2)
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☑	☐	☐	DUP-1 @ LMW-9S FB-1 @ LMW-1S DUP-2 @ LMW-6S FB-2 @ LMW-7S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	DUP-1: Cd, Cr; DUP-2: Mo, Cd (50) (21)
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	TDS only
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca: MS %Rec Low
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☑	☐	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chromium (Cr)	1.0	U	Detected in Blank; PQL > Result > MDL
⊥	Chloride	54.8	D	Result had a dilution factor (DF) of 5
⊥	Sulfate	307	D	20
S-LMW-2S	Chloride	116	D	20
⊥	Sulfate	228	D	20
S-LMW-3S	Chloride	20.0	D	2
⊥	Sulfate	34.7	D	2
S-LMW-4S	⊥	25.0	D	2
S-LMW-5S	⊥	968	D	100
⊥	Chloride	33.7	D	2
S-LMW-6S	Sulfate	842	D	100
⊥	Molybdenum (Mo)	20.0	UJ	Blank; PQL > Result > MDL; RPD not met
⊥	Cadmium (Cd)	0.50	J	RPD not met; Result > MDL
S-LMW-7S	Mo	20.0	U	Blank; PQL > Result > MDL
⊥	Sulfate	293	D	DF of 50
S-LMW-8S	Chloride	39.4	D	5
⊥	Sulfate	386	D	50
S-LMW-9S	Chloride	76.1	D	5
⊥	Sulfate	303	D	50
⊥	Cd	0.10	J	RPD not met; Result > MDL
⊥	Cr	0.34	UJ	⊥; MDL > Result
S-LMW-DUP-1	Cd	0.060	J	⊥; Result > MDL
⊥	Cr	0.75	J	⊥; ⊥
⊥	Chloride	75.7	D	DF of 5
⊥	Sulfate	304	D	⊥ 50
—	See Next Page	—	—	—

Signature: Tommy J Goodwin Date: 1/29/2018

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-DUP-2	Cd	0.67	J	RPD not met; Result > MDL
	Cr	0.34	UJ	⊥ ; MDL > Result
	Mo	20.0	U	Blank; PQL > Result > MDL
	Sulfate	813	D	DF of 100
S-LMW-6S	Cr	0.40	J	RPD not met; Result > MDL
S-BMW-1S	Sulfate	23.4	D	DF of 2

Signature: _____ Date: 1/29/2018

MEMORANDUM

Date:	April 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.5**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Calcium, Boron, Chloride, and Sulfate exceeded the recovery criteria for MS and MSD. Data was not qualified on MS/MSD data alone.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit or detected in a blank the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Ameren Sioux - Fly - ES
Project Number: 1531406.0003B
Reviewer: T Goodwin
Validation Date: 4/19/2017

Laboratory: Pace Analytical
SDG #: 60231804
Analytical Method (type and no.): Metals (200.7+200.8), Hg (7470), TDS (2540C), pH (4500 H+), Anions (300.0), Rads (903.1+904.0)
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S, S-BMW-3S
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1SMS, S-LMW-1SMSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	JSI/JS
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	pH, Sp.Cond., Turb., Temp., D.O., ORP, Flow, D.T.W.
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (J2)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	MS%rec low

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Ca, Mo, Sb, Cd
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-2: Ca, Cr; FB-1: Ca, TDS
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				FB-1 @ LMW-3S, FB-2 @ LMW-9S
	☑	☐	☐	DUP-1 @ LMW-6S, DUP-2 @ LMW-7S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	DUP-1: Mo, Cr; DUP-2: Co, As
c) Were lab duplicates analyzed (note original and duplicate samples)?				
	☑	☐	☐	TDS only
d) Were lab dup. precision criteria met (note RPD)?	☐	☑	☐	21

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ba, Ca, Chloride, Sulfate
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☐	☑	☐	Ba, Ca, Chloride
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-DUP-1	Cr	0.34	UJ	RPD not met, result was < MDL
~~S-LMW-FB-1~~	~~TDS~~	~~5.5~~	~~J~~	~~RPD not met on Sample Duplicate~~ (12)
S-LMW-FB-2	Ca	126	J	Detected in blank, result < 5x PQL
S-LMW-3S	Mo	2.6	U	" , result < PQL
S-LMW-5		1.4	U	
S-LMW-7S		2.2		
S-BMW-1S		2.7		
S-LMW-DUP-1		0.96		
S-LMW-DUP-2		2.2		
S-LMW-4S		2.6		
S-LMW-FB-1	Ca	99.0	U	
S-LMW-FB-2	"	126	U	
S-BMW-3S	Sb	0.36		
	Cd	0.056		
	Hg	0.043		
D's S-LMW-1S	Chloride	24.9	D	Result has a dilution factor (DF) of 2
"	Sulfate	115		10
S-LMW-2S	Chloride	122		10
"	Sulfate	245		20
S-LMW-3S		34.5		2
S-LMW-4S		22.9		2
S-LMW-6S		823		100
S-LMW-5S		1100		100
"	Chloride	31.4		2
S-LMW-7S	"	19.1		2
"	Sulfate	335		20

Signature: Tommy J Hooker Jr Date: 4/19/2017

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-8S	Chloride	37.3	D	Result had a DF of 5
"	Sulfate	386		50
S-LMW-9S	Chloride	74.0		10
"	Sulfate	310		50
S-LMW-DUP-2	Chloride	19.9		2
"	Sulfate	332		20
S-LMW-DUP-1		827		100
S-BMW-1S		34.8		2
S-BMW-3S		28.2		2

Signature: Tommy J. Woods Jr. Date: 4/19/2017

MEMORANDUM

Date:	July 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – BMW-3S MAKEUP 1**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux - Fly-Ash MW MvEl
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003 8
Validation Date: 7/24/2017

Laboratory: Pace Analytical
SDG #: 60233959
Analytical Method (type and no.): Metals 200.7&200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1&904.0
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐ _____
Sample Names S-BMW-~~3D~~ (12) 35

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?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☐	☒	☐	pH
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☑	☐	☐	Sulfate
g) Were any matrix problems noted?	☑	☐	☐	Ca

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Ba(1.8),
b) Were analytes detected in the field blank(s)?	☐	☐	☑	
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☐	☐	☑	
b) Were field dup. precision criteria met (note RPD)?	☐	☐	☑	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	TDS(3)

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca(Low)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-BMW-3S	Sulfate	32.2	D	Dilution Factor of 2

Signature: Tommy J. Woods

Date: 7/24/2017

MEMORANDUM

Date:	April 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.6**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Calcium and Sulfate exceeded the recovery criteria for MS. Calcium exceeded the recovery criteria for MSD. Data was not qualified on MS/MSD data alone.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the MDL value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit or detected in a blank the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Amesen Sioux - Fly-E6 -LMW
Project Number: 1531406.0003 B
Reviewer: T Goodwin
Validation Date: 4/24/2017

Laboratory: Pace Analytical
SDG #: 60235474
Analytical Method (type and no.): Metals/200.7+200.8), Hg 7470, TDS 2540C, pH 4500 H+, Anions 300.0, Rads /903.1+904.0)
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S, S-BMW-3S,
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S MS, S-LMW-1S MSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	JS + TG
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	pH, Cond., Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	Label issue resolved

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (66)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	Accepted on LCS

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Ca, Pb, Mo, Cr,
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-1: Be, Ca, Mo, Cr; FB-2: Ca, Cr,
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				DUP-1 @ LMW-5S ; DUP-2@ LMW-7S
	☑	☐	☐	FB-1@ LMW-6S ; FB-2@ LMW-2S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	DUP-1: Co (29.6), As (24.4), Cd (38.6), Cr (21.2), Hg (25.4)
c) Were lab duplicates analyzed (note original and duplicate samples)?				
	☑	☐	☐	TDS only
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	4

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca (142), Sulfate (123)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☐	☑	☐	Ca (147 ~~93~~ 45)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-9S	Cd	0.10	U	Detected in blank, Result < PQL
S-BMW-1S	Cd	0.099	U	
S-LMW-3S	Mo	0.65	U	
S-LMW-4S	Mo	2.2	U	
S-LMW-FB-1	Ca	44.7	U	
S-LMW-FB-2	Ca	20.0	U	
S-LMW-2S	Cr	0.46	U	Detected in FB-2, Result < PQL
S-LMW-6S	Mo	1.5	U	
"	Cr	0.76	U	
S-LMW-5S	Co	0.72	UJ	RPD was not met, Result < MDL
"	Cd	0.73	J	" , Result > MDL
S-LMW-DUP-1	Cd	0.52	J	" "
D's S-LMW-2S	Chloride	216	D	Result had a Dilution Factor (DF) of 20
"	Sulfate	218		20
S-LMW-5S	Chloride	28.5		2
"	Sulfate	749		50
S-LMW-6S	~~Chloride~~	~~4.4~~ (R2)		
"	Sulfate	856	D	Result had a DF of 100
S-LMW-7S		371		50
S-LMW-8S		402		50
"	Chloride	43.5		5
S-LMW-9S	Chloride	73.4		5
"	Sulfate	286		20
S-BMW-1S		26.5		2
S-BMW-2S		24.7		2
See Next Page				

Signature: Tommy J Goodwin Jr Date: 4/24/17

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-DUP-1	Chloride	28.8	D	Result has a DF of 2
"	Sulfate	721		50
S-LMW-DUP-2		372		50
S-LMW-3S		37.3		2
"	Chloride	22.7		2
S-LMW-4S	Sulfate	29.8		2
S-LMW-1S	Chloride	20.5		2
"	Sulfate	77.6		5
				(TA)

Signature: Tommy J. Hood Jr. Date: 4/24/17

MEMORANDUM

Date:	July 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – BMW-3S MAKEUP 2**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux – Fly – LMW MUER
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003B
Validation Date: 7/24/2017

Laboratory: Pace Analytical
SDG #: 60237185
Analytical Method (type and no.): Metals 200.7&200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1&904.0
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names S-BMW-~~3D~~ 3S

NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).

Field Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies:

Chain-of-Custody (COC)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	**YES**	**NO**	**NA**	**COMMENTS**
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☐	☒	☐	pH
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☑	☐	☐	Sulfate
g) Were any matrix problems noted?	☐	☑	☐	

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Hg (0.10), Sb (0.18),
b) Were analytes detected in the field blank(s)?	☐	☐	☑	
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☐	☐	☑	
b) Were field dup. precision criteria met (note RPD)?	☐	☐	☑	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	TDS (5)

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-BMW-35	Sulfate	27.1	D	Dilution of 2
"	Mercury (Hg)	0.20	U	Detected in Method Blank; PQL>Result
"	Antimony (Sb)	1.0	U	" "
			TK	

Signature: Tommy J. Brooks Jr Date: 7/24/2017

MEMORANDUM

Date:	April 25, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.7**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Calcium exceeded the recovery criteria for MS. Data was not qualified on MS/MSD data alone.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the PQL value and qualified as non-detects (U). If the sample results were greater than the PQL, but less than 5 times the blank detection result, the detections were recorded at the results value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J). If the results were less than the method detection limit or detected in a blank the results were qualified as non-detects and estimates (UJ).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: J Ingram
Project Name: Amaren - Sioux - ET - LMW
Project Number: 1531406.0003 B
Reviewer: T Goodwin
Validation Date: 4/25/17

Laboratory: Pace Analytical
SDG #: 60239431
Analytical Method (type and no.): Metals (200.7 + 200.8), Hg 7470, TDS 2540C, pH 4500 H+, Anions 300.0, Rads (903.1 + 704.0)
Matrix: ☐ Air ☐ Soil/Sed. ☑ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S
S-BMW-1S, S-BMW-3S
S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-1S MS, S-LMW-1S MSD

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?	☑	☐	☐	
b) Sampling team indicated?	☑	☐	☐	JS/JS1
c) Sample location noted?	☑	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☑	
e) Sample type indicated (grab/composite)?	☑	☐	☐	
f) Field QC noted?	☑	☐	☐	
g) Field parameters collected (note types)?	☑	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☑	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☑	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☑	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☑	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☑	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☑	
b) Were hold times met for sample analysis?	☐	☑	☐	pH
c) Were the correct preservatives used?	☑	☐	☐	
d) Was the correct method used?	☑	☐	☐	
e) Were appropriate reporting limits achieved?	☑	☐	☐	
f) Were any sample dilutions noted?	☑	☑ (1b)	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☑	☐	☐	Accepted on LCS

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Be, Ba, As, Cr,
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-1: Ba, As, Cr, TDS ; FB-2: Ba, Ba, Cr
c) Were analytes detected in the equipment blank(s)?	☐	☐	☑	
d) Were analytes detected in the trip blank(s)?	☐	☐	☑	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				DUP-1@ ~~MW-2D~~ CMW-4S TH, DUP-2@ CMW-3S
	☑	☐	☐	FB-1@ ~~MW-6D~~ CMW-5S TH, FB-2@ CMW-7S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	Dup 1: Mo (20.0), Cr (46.9), Chloride (23.7)
c) Were lab duplicates analyzed (note original and duplicate samples)?				Dup 2: As (21.3), Th (78.0)
	☑	☐	☐	TDS + pH
d) Were lab dup. precision criteria met (note RPD)?	☐	☑	☐	pH (9)

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☑	
b) Was the %D within control limits?	☐	☐	☑	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca (49)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Cr	1.0	U	Detected in Blank, Result < PQL
S-LMW-2S	Cr	1.0	U	
S-LMW-3S	As	1.0	U	
"	Tl	0.036	UJ	RPD was not met, Result < MDL
S-LMW-4S	Chloride	~~4.1~~ T6	J	RPD was not met, Result > MDL, ~~Dilution~~
	~~Chloride~~ T4			
S-LMW-FB-1	B	100	U	Detected in B'lank, Result < PQL
	Cr	1.0		
S-LMW-FB-2	B	100		
	Cr	1.0		
S-LMW-5S	As	1.0		
	Cr	1.0		
S-LMW-7S	As	1.0		
	Cr	1.0		
S-LMW-8S	Cr	1.1		Detected in Blank, Result is >PQL, < 5x Blan
S-LMW-9S	Cr	1.0		Detected in Blank, Result < PQL
S-BMW-1S	Cr	1.0		
S-BMW-3S	Cr	1.0		
	B	100		
S-LMW-DUP-1	Cr	1.0		
	Chloride	5.2	J	RPD not met, Result > MDL
S-LMW-DUP-2	Tl	0.036	U	RPD not met, Result < MDL
—— Dilutions	on next page ——			

Signature: Tommy J. Goode Jr. Date: 6/27/17

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Sulfate	68.5	D	Result had a dilution factor of 5
S-LMW-2S	Chloride	219		20
"	Sulfate	206		20
S-LMW-3S	Chloride	31.5		2
"	Sulfate	37.2		2
S-LMW-4S	"	40.8		5
S-LMW-5S	"	713		50
"	Chloride	26.1		2
S-LMW-6S	Sulfate	1030		100
S-LMW-7S	"	443		50
S-LMW-8S	"	417		50
"	Chloride	45.6		5
S-LMW-9S	Chloride	70.7		5
"	Sulfate	282		20
S-BMW-1S	"	27.6		2
S-BMW-3S	"	26.1		2
S-LMW-DUP-1	"	47.7		5
S-LMW-DUP-2	Chloride	31.9		2
"	Sulfate	37.4		2
				TG

Signature: Tommy J Woods Jr Date: 6/27/17

MEMORANDUM

Date:	July 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. LMW – BMW-3S MAKEUP 3**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the PQL value and qualified as non-detects (U).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux-Fly-LMW MCE3
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003B
Validation Date: 7/24/2017

Laboratory: Pace Analytical
SDG #: 60241394
Analytical Method (type and no.): Metals 200.7&200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1&904.0
Matrix: ☐ Air ☐ Soil/Sed ☒ Water ☐ Waste ☐ _____
Sample Names S-BMW-30 35

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?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☐	☒	☐	pH
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☑	☐	☐	Sulfate
g) Were any matrix problems noted?	☐	☐	☐	

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were analytes detected in the method blank(s)?	☐	☑	☐	
b) Were analytes detected in the field blank(s)?	☐	☐	☑	
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	**YES**	**NO**	**NA**	**COMMENTS**
a) Were field duplicates collected (note original and duplicate sample names)?	☐	☐	☑	
b) Were field dup. precision criteria met (note RPD)?	☐	☐	☑	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☐	☑	☐	TDS(11)

Blind Standards	**YES**	**NO**	**NA**	**COMMENTS**
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was MS accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-BMW-35	Sulfate	27.6	D	Dilution Factor of 2
			TL	

Signature: Tommy Woodall Date: 7/24/2017

MEMORANDUM

Date:	July 5, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – E.8**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the PQL value and qualified as non-detects (U). If the sample results were greater than the PQL, but less than 5 times the blank detection result, the detections were recorded at the result value and qualified as non-detects (U).
- When a field duplicate RPD was not met, associated samples were qualified as estimates (J).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux - Fly - E8
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003B
Validation Date: 7/5/2017

Laboratory: Pace Analytical
SDG #: 60246016
Analytical Method (type and no.): Metals 200.7&200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1&904.0
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S, S-LMW-9S, S-BMW-1S, S-BMW-3S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-FB-2, S-LMW-7SMS, S-LMW-7SMSD

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?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☐	☒	☐	pH
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☑	☐	☐	Chloride, Sulfate
g) Were any matrix problems noted?	☐	☑	☐	

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Be(0.31, 0.38), Ca(36.1), Li(3.3), B(3.8), Tl(0.043)
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-1: B(36.6), Ca(57.5), Cr(0.17); FB-2: Be(0.24), B(12.2)
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?				Dup-1@ LMW-3S Dup-2@ LMW-8S
	☑	☐	☐	FB-1@ LMW-2S FB-2@ LMW-5S
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	DUP-1: Be(26.1), As(24.6), Cd(34.5), Tl(200)
c) Were lab duplicates analyzed (note original and duplicate samples)?				DUP-2: Cr(161.4)
	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	TDS(9)

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chloride	20.5	D	Result had a Dilution Factor (DF) of 5
"	Sulfate	49.2	D	5
S-LMW-2S	Chloride	132	D	20
↓	Sulfate	265	D	20
↓	Beryllium (Be)	1.0	U	Detected in Method Blank (MB); Result < PQL
↓	Chromium (Cr)	1.0	U	" Field Blank (FB); Result < PQL
S-LMW-3S	Chloride	33.2	D	DF of 2
↓	Sulfate	36.5	D	" 2
↓	Be	1.0	U	Detected in MB; Result < PQL
↓	Thallium (Tl)	1.0	U	↓ ↓
S-LMW-4S	Be	1.0	U	
↓	Tl	1.0	U	
↓	Sulfate	55.2	D	DF of 5
S-LMW-5S	Chloride	23.5	D	↓ 2
↓	Sulfate	771	D	↓ 50
↓	Be	1.0	U	Detect in MB; Result < PQL
↓	Tl	1.0	U	↓ ↓
S-LMW-6S	Be	1.0	U	
↓	Tl	1.0	U	
↓	Sulfate	774	D	DF of 100
S-LMW-7S	Chloride	24.8	D	↓ 2
↓	Sulfate	426	D	↓ 50
↓	Be	1.0	U	Detect in MB; Result < PQL
↓	Tl	1.0	U	↓ "
S-LMW-5S	Cr	1.0	U	↓ FB; ↓
—See Next Page—				

Signature: Tommy J. Hoskins Date: 7/5/2017

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-8S	Chloride	51.4	D	DF of 5
	Sulfate	422	D	" 50
	Be	1.0	U	Detected in MB; Result < PQL
	Tl	1.0	U	" "
	Cr	1.5	J	RPD exceeded limits; Result > ~~PQL~~ MDL
S-LMW-9S	Be	1.0	U	Detect in MB; Result < PQL
	Tl	1.0	U	" "
	Chloride	93.1	D	DF of 5
	Sulfate	287	D	20
S-BMW-1S	Sulfate	23.1	D	2
	Be	1.0	U	Detect in MB; Result < PQL
	Tl	1.0	U	
S-BMW-3S	Be	1.0	U	
	Li	1.0	U	
	Sulfate	25.0	D	~~Detect~~ DF of 2
S-LMW-DUP-1	Chloride	33.5	D	2
	Sulfate	36.7	D	2
	Be	1.0	U	Detect in MB; Result < PQL
S-LMW-DUP-2	Tl	~~0.276~~ 1.0	U	
	Be	1.0	U	
	Chloride	55.1	D	DF of 5
	Sulfate	420	D	" 50
S-LMW-FB-2	Be	1.0	U	Detect in MB; Result < PQL

Signature: Tommy J Woods Jr Date: 7/5/2017

MEMORANDUM

Date:	July 24, 2017	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – BMW-3S MAKEUP 4**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Analysis of pH for all samples was initiated outside of the 15 minute EPA required holding time. Field measurements of pH were taken at the time of sample collection.
- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the PQL value and qualified as non-detects (U).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux- Fly - LMW
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003 B
Validation Date: 7/24/2017

Laboratory: Pace Analytical
SDG #: 60247466
Analytical Method (type and no.): Metals 200.7&200.8, Hg 7470, TDS 2540C, pH 4500H+, Anions 300.0, Rads 903.1&904.0
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐ _____
Sample Names S-BMW-~~38~~ 35

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?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies: _____

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☐	☒	☐	pH
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☑	☐	☐	Sulfate
g) Were any matrix problems noted?	☐	☑	☐	

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	Be(0.31), Cr(0.087)
b) Were analytes detected in the field blank(s)?	☐	☐	☑	
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☐	☐	☑	
b) Were field dup. precision criteria met (note RPD)?	☐	☐	☑	
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	TDS(4)

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☑	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-BMW-33	Sulfate	238	D	Dilution of 2
"	Chromium (Cr)	1.0	U	Detected in Method Blank; Result < PQL
			(R)	

Signature: Tommy J Woodard Date: 7/24/2017

MEMORANDUM

Date:	January 3, 2018	**Project No.:**	1531406
To:	Project File	**Project:**	Ameren
From:	Tommy Goodwin		
cc:	Amanda Derhake, Jeff Ingram	**Email:**	
RE:	**DATA VALIDATION SUMMARY, SIOUX ENERGY CENTER. SCPB – D.M. NOV. 2017**		

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- Reported results with high levels of non-target analytes or other matrix interference were analyzed at dilution and qualified as dilution (D).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).
- When a compound was detected in a blank (i.e. method, field, rinsate), and the sample results were greater than the MDL and less than the PQL the results were recorded at the PQL value and qualified as non-detects (U).
- When a duplicate (i.e. field, sample) RPD was not met, associated samples were qualified as estimates (J).

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Name: Ameren-Sioux- LMW-D.M. Nov 2017
Reviewer: T Goodwin

Project Manager: J Ingram
Project Number: 1531406.0003 F
Validation Date: 1/3/18

Laboratory: Pace Analytical
SDG #: 60258162
Analytical Method (type and no.): 200.7 Metals, Total; 2320B Alkalinity; 2540C TDS; 300.0 IC Anions
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐
Sample Names S-LMW-1S, S-LMW-2S, S-LMW-3S, S-LMW-4S, S-LMW-5S, S-LMW-6S, S-LMW-7S, S-LMW-8S S-LMW-9S, S-BMW-1S, S-BMW-3S, S-LMW-DUP-1, S-LMW-DUP-2, S-LMW-FB-1, S-LMW-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?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	
g) Field parameters collected (note types)?	☒	☐	☐	pH, Cond, Turb, Temp, DO, ORP, Flow, DTW
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☑	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☐	☐	☒	
b) Were hold times met for sample analysis?	☑	☐	☐	
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☐	☐	☐	
g) Were any matrix problems noted?	☑	☐	☐	Ca

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST - 7001

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☑	☐	☐	B(4.8),(7.9), K(121), Na(553)
b) Were analytes detected in the field blank(s)?	☑	☐	☐	FB-1: B(38.9), Ca(51.6), Alk(7.1);
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	FB-2: B(19.3);
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☑	☐	☐	
b) Were the proper analytes included in the LCS?	☑	☐	☐	
c) Was the LCS accuracy criteria met?	☑	☐	☐	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☑	☐	☐	DUP-1@ LMW-75; DUP-2@ LMW-55 FB-1@ LMW-85; FB-2@ LMW-65
b) Were field dup. precision criteria met (note RPD)?	☐	☑	☐	DUP-1: Fe(46); DUP-2: Fe(23.2)
c) Were lab duplicates analyzed (note original and duplicate samples)?	☑	☐	☐	
d) Were lab dup. precision criteria met (note RPD)?	☑	☐	☐	

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☑	☐	Ca(15)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
b) Was MSD accuracy criteria met?	☐	☑	☐	Ca(30)
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☑	
c) Were MS/MSD precision criteria met?	☑	☐	☐	

Comments/Notes:

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

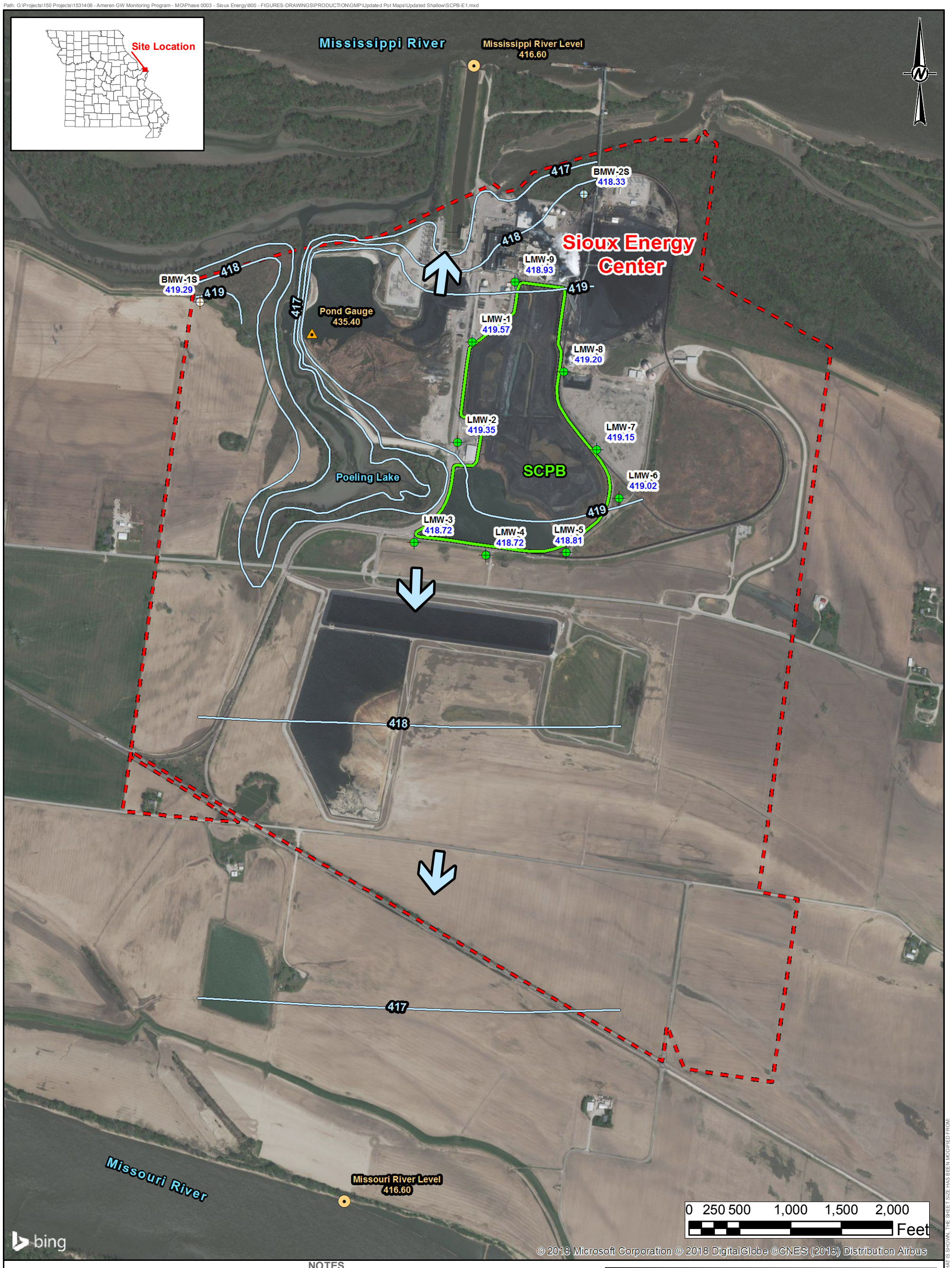
Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
S-LMW-1S	Chloride	24.4	D	Result had a dilution factor (DF) of 2
⊥	Sulfate	113	D	10
S-LMW-2S	Chloride	156	D	20
⊥	Sulfate	268	D	20
S-LMW-3S	Chloride	29.6	D	2
⊥	Sulfate	38.2	D	2
S-LMW-4S	⊥	34.6	D	2
S-LMW-5S	⊥	585	D	50
⊥	Chloride	29.5	D	2
⊥	Iron (Fe)	99.5	J	Dup RPD exceeded limit; Result > MDL
S-LMW-6S	Sulfate	792	D	DF of 100
S-LMW-7S	Sulfate	519	D	DF of 50
⊥	Iron (Fe)	32.1	J	Dup RPD exceeded limit; Result > MDL
S-LMW-8S	Chloride	52.2	D	DF of 5
⊥	Sulfate	463	D	50
S-BMW-1S	⊥	41.4	D	5
S-BMW-3S	⊥	28.2	D	2
S-LMW-DUP-1	⊥	507	D	50
⊥	Fe	20.1	J	Dup RPD exceeded limit; Result > MDL
S-LMW-DUP-2	Fe	78.8	J	⊥ ⊥
⊥	Chloride	29.4	D	DF of 2
⊥	Sulfate	619	D	50
S-LMW-FB-1	Boron (B)	100	U	Detected in MB; PQL > Result > MDL
S-LMW-FB-2	B	100	U	⊥ ⊥
S-LMW-9S	Chloride	89.6	D	DF of 10
⊥	Sulfate	302	D	⊥ 50

Signature: Tommy Hathcock (TH) Date: 1/3/2018

APPENDIX C – POTENTIOMETRIC SURFACE MAPS

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Updated Shallow\SCPB-E1.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Lined Fly Ash Surface Impoundment Monitoring Well
- River Level
- Unlined Bottom Ash Pond Gauge

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 1 - MARCH 16, 2016

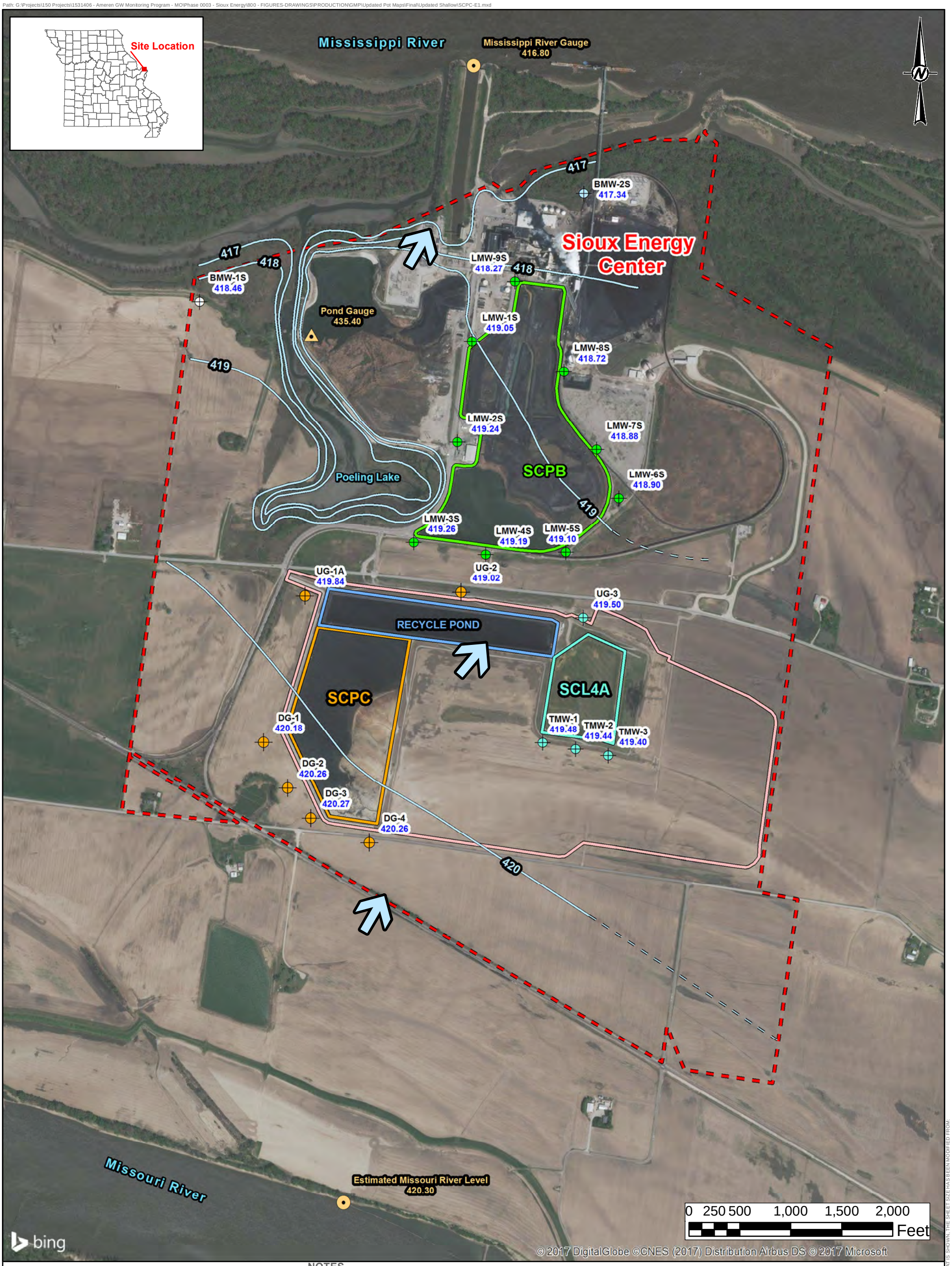
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-03-30
PREPARED	JSI
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
1in
0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E1.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 1 - MAY 9, 2016

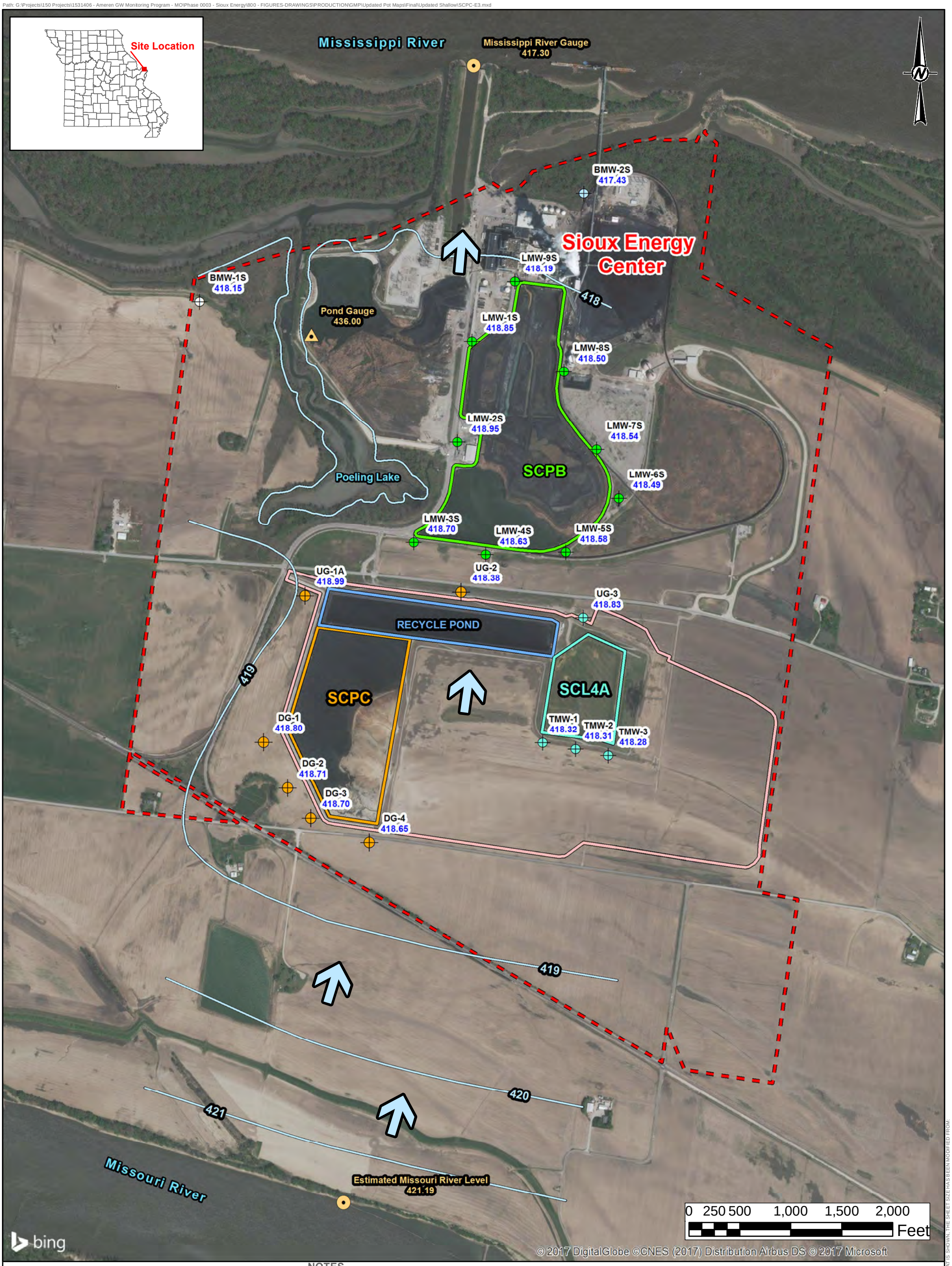
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-05-25
PREPARED	JSI
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
1 in
0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E3.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 3 - JULY 5, 2016

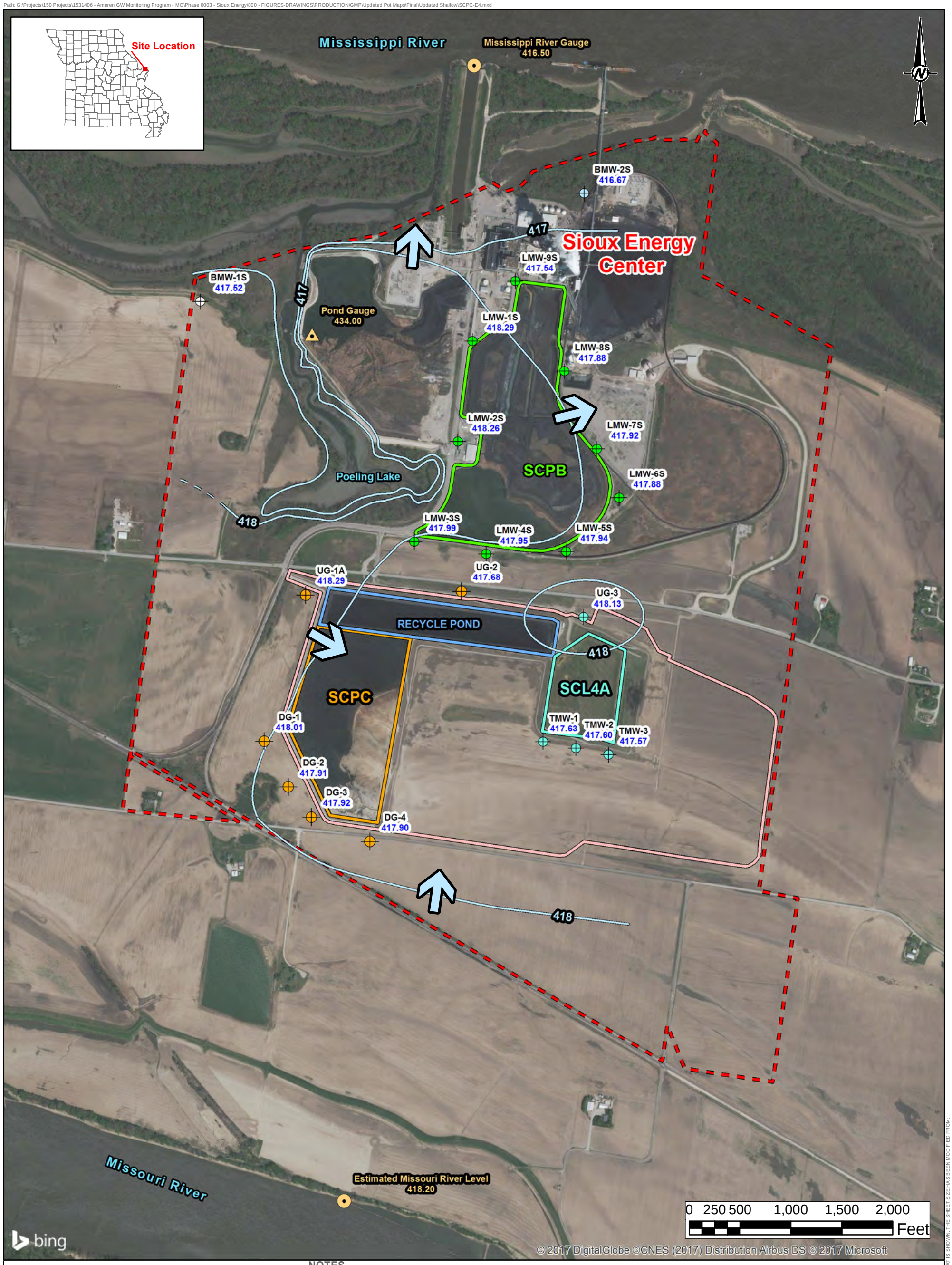
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-08-16
PREPARED	JS
DESIGN	JS
REVIEW	JSI
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1in 0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E4.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 4 - SEPTEMBER 14, 2016

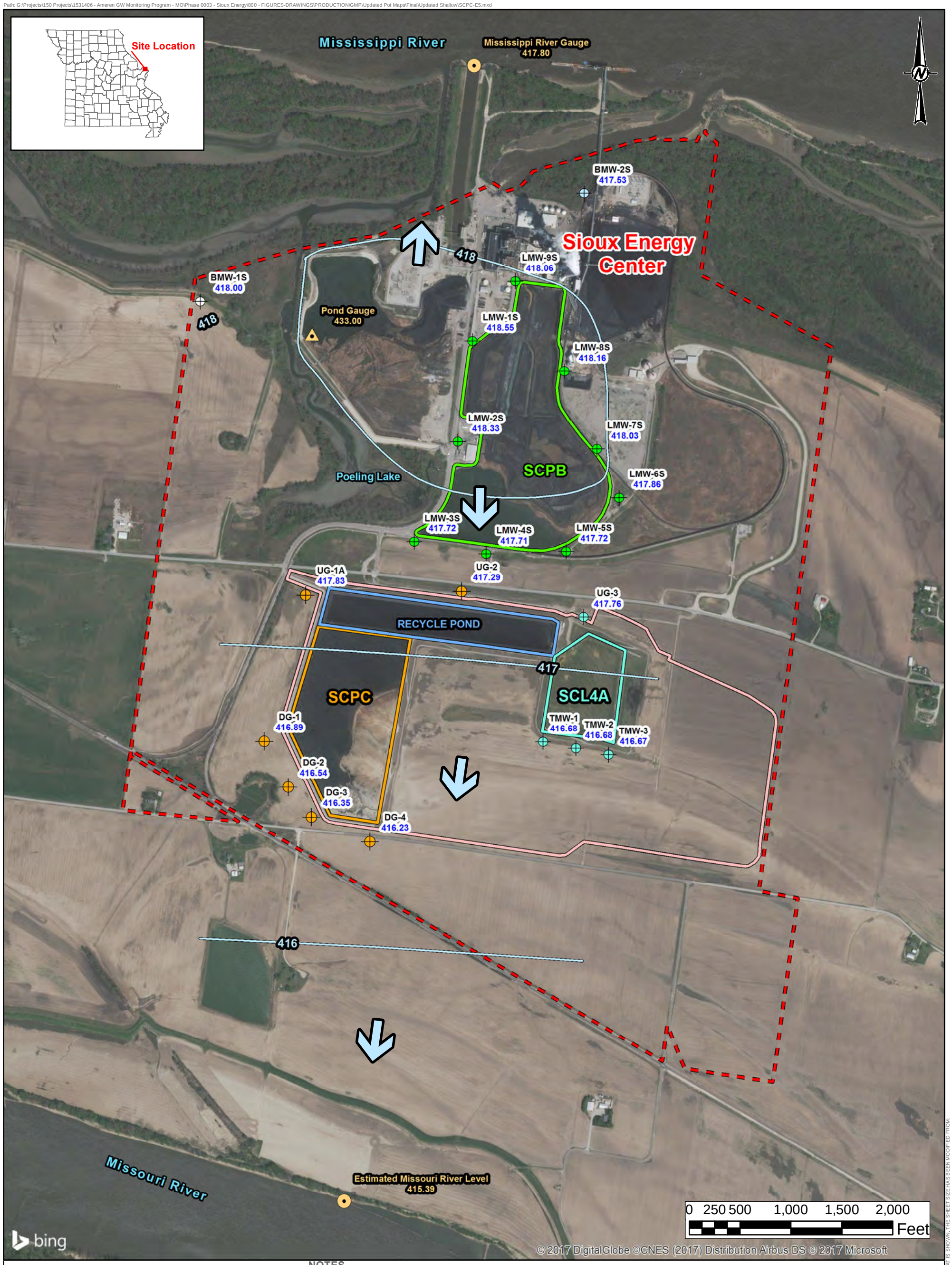
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-09-27
PREPARED	JSI
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P4**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E5.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 5 - NOVEMBER 7, 2016

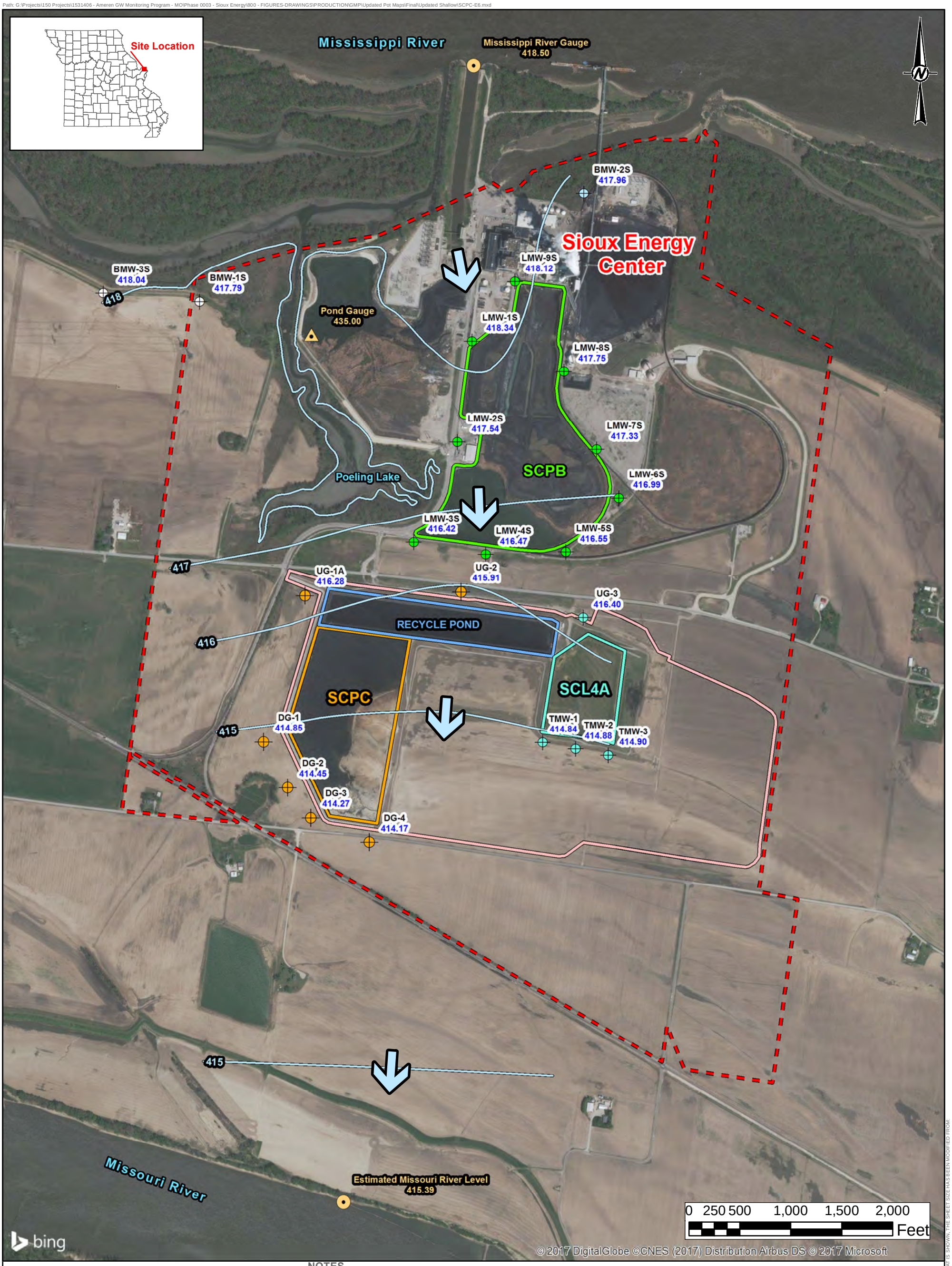
CONSULTANT
Golder Associates

YYYY-MM-DD	2016-11-07
PREPARED	JSI
DESIGN	JSI
REVIEW	MSG
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E6.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 6 - JANUARY 3, 2017

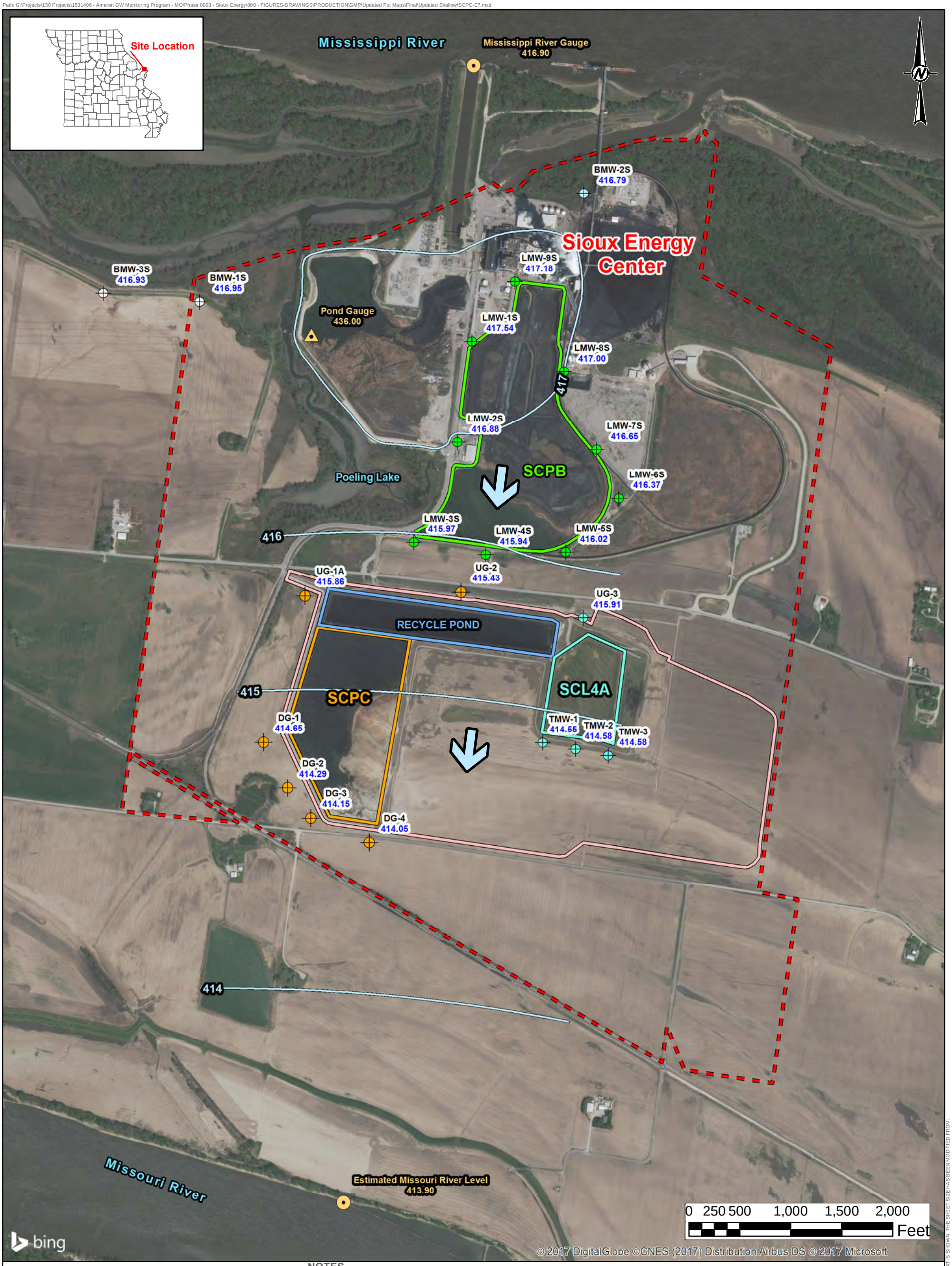
CONSULTANT
Golder Associates

YYYY-MM-DD	2017-01-03
PREPARED	JS
DESIGN	JSI
REVIEW	JSI
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P6**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E7.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 7 - MARCH 8, 2017

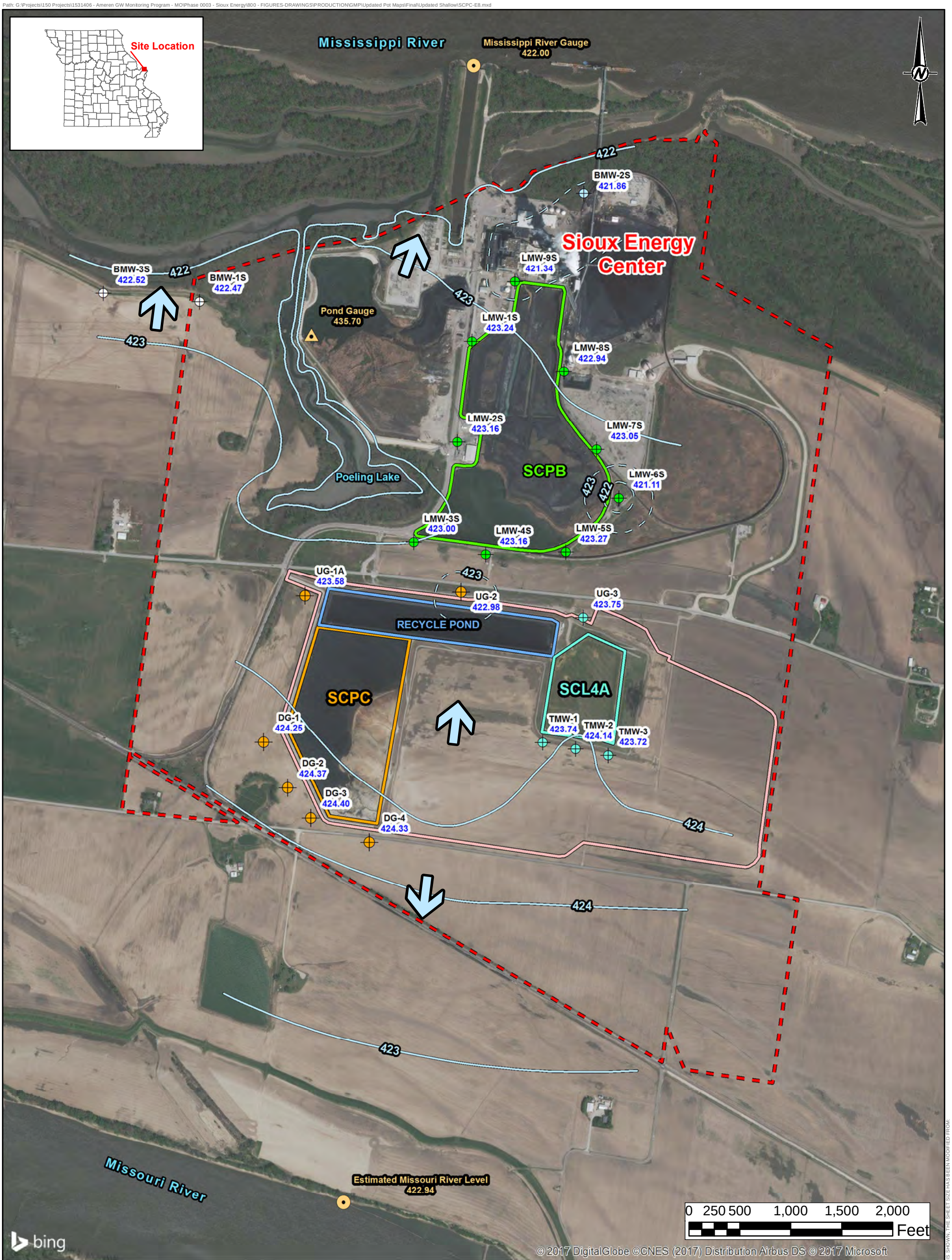
CONSULTANT
Golder Associates

YYYY-MM-DD	2017-03-14
PREPARED	JSI
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P7**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-E8.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) POND GAUGE LEVEL OBTAINED ONSITE BY GOLDER.
8.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
9.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
BACKGROUND EVENT 8 - JUNE 5, 2017

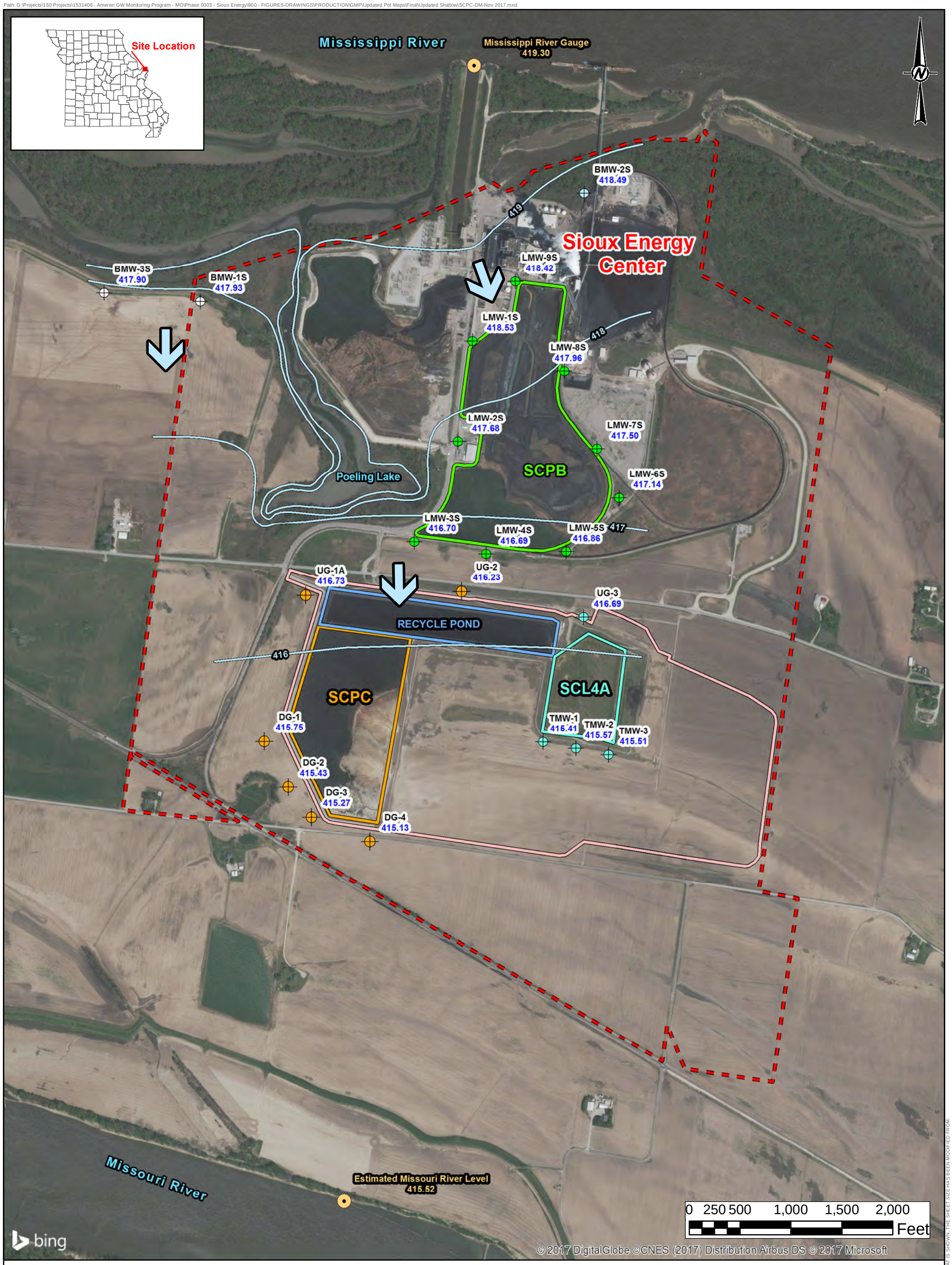
CONSULTANT
Golder Associates

YYYY-MM-DD	2017-07-05
PREPARED	JSI
DESIGN	JSI
REVIEW	RJF
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P8**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
1 in
0

Path: G:\Projects\150 Projects\1531406 - Ameren GW Monitoring Program - MO\Phase 0003 - Sioux Energy\800 - FIGURES-DRAWINGS\PRODUCTION\GMP\Updated Pot Maps\Final\Updated Shallow\SCPC-DM-Nov 2017.mxd



LEGEND

- Sioux Energy Center Property Boundary
- SCPB - Fly Ash Surface Impoundment

Ground/Surface Water Measurement Locations

- SCL4A - UWL Cell 4A Monitoring Well
- Groundwater Elevation Piezometer
- Background Monitoring Well
- SCPB - Fly Ash Surface Impoundment Monitoring Well
- SCPC - WFGD Surface Impoundment Monitoring Well
- SPCA Pond Gauge
- River Elevation

Utility Waste Landfill (UWL)

- SCL4A - UWL Cell 4A
- SCPC - WFGD Surface Impoundment
- Water Recycle Pond
- UWL Future Perimeter Fence

Groundwater Elevation Contours

- Groundwater Elevation Contour (FT MSL)
- Inferred Groundwater Elevation Contour (FT MSL)
- Groundwater Flow Direction

NOTES

1.) ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2.) GOLDER GROUNDWATER MONITORING WELLS SURVEYED BY ZAHNER AND ASSOCIATES, INC. ON JANUARY 14, APRIL 29, AND DECEMBER 8, 2016.
3.) GROUNDWATER AND SURFACE WATER ELEVATIONS DISPLAYED IN FT MSL (FEET ABOVE MEAN SEA LEVEL).
4.) GROUNDWATER MEASUREMENTS OBTAINED BY GOLDER.
5.) MISSOURI RIVER ELEVATION ESTIMATED BASED ON NEARBY USGS (UNITED STATES GEOLOGICAL SURVEY) RIVER GAUGING LOCATIONS.
6.) MISSISSIPPI RIVER ELEVATION PROVIDED BY AMEREN MISSOURI.
7.) UWL BOUNDARIES, DESIGNATIONS AND STATE MONITORING WELL LOCATIONS BASED ON DRAWINGS IN THE UWL PROPOSED LANDFILL PERMIT (#0918301).
8.) WFGD - WET FLUE GAS DESULFURIZATION.

REFERENCE

1.) AMEREN MISSOURI SIOUX ENERGY CENTER, SIOUX PROPERTY CONTROL MAP, FEBRUARY 2011.
2.) COORDINATE SYSTEM: NAD 1983 STATE PLANE MISSOURI EAST FIPS 2,401 FEET.
3.) USGS NATIONAL WATER INFORMATION SYSTEM, USGS GAUGES 06935965 (ST. CHARLES), 07010000 (ST. LOUIS), 05587498 (ALTON), GRAFTON (05587450).
4.) AMEREN MISSOURI SIOUX POWER PLANT UTILITY WASTE LANDFILL PROPOSED CONSTRUCTION PERMIT MODIFICATION (#0918301), AUGUST 2014.

CLIENT
AMEREN MISSOURI
SIOUX ENERGY CENTER

PROJECT
CCR GROUNDWATER MONITORING PROGRAM

TITLE
SCPB POTENTIOMETRIC SURFACE MAP
DETECTION MONITORING - NOVEMBER 13, 2017

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-11-22
PREPARED	RJF
DESIGN	JSI
REVIEW	JS
APPROVED	MNH

PROJECT No. 153-1406
PHASE 0003B
FIGURE **P9**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 1 in 0

Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA
Tel: (636) 724-9191
Fax: (636) 724-9323

Golder Associates

Engineering Earth's Development, Preserving Earth's Integrity