

**2019 – 2020 ANNUAL GROUNDWATER MONITORING
AND CORRECTIVE ACTION REPORT**

AREA 2 POND, AREA 3 POND, AND AREA 4 POND
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

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**2019 – 2020 Annual Groundwater Monitoring
and Corrective Action Report**

This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring program for the Lawrence Energy Center Area 2 Pond (inactive), Area 3 Pond (inactive), and Area 4 Pond (inactive; collectively, Ash Ponds) consistent with applicable sections of Code of Federal Regulations Title 40 §§ 257.90 through 257.98, and describes activities conducted from July 2019 through June 2020 and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report for the LEC Ash Ponds is, to the best of my knowledge, accurate and complete.

Signed: 
Professional Geologist

Print Name: Mark Nicholls
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Title: Technical Expert 2
Company: Haley & Aldrich, Inc.



1. Introduction

This 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the Area 2 Pond (inactive), Area 3 Pond (inactive), and Area 4 Pond (inactive; collectively, Ash Ponds) at the Lawrence Energy Center (LEC), operated by Evergy Kansas Central, Inc. (Evergy; f/k/a/ Westar Energy, Inc.). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (Rule) effective 19 October 2015, including subsequent revisions, specifically Code of Federal Regulations Title 40 (40 CFR), subsection § 257.90(e). Evergy prepared and placed in the facility's operating record a notification of intent to initiate closure of the Ash Ponds by 17 December 2015. Due to the USEPA Extension of Compliance Deadlines for Certain Inactive Surface Impoundments, Response to Partial Vacatur effective 4 October 2016, in accordance with the requirement under § 257.100(e)(1), the alternative reporting timeframes specified in § 257.100(e)(2) through (6) are applicable for the Ash Ponds.

This Annual Report documents the groundwater monitoring system for the Ash Ponds consistent with applicable sections of §§ 257.90 through 257.98, and describes activities conducted between July 2019 and June 2020 and documents compliance with the Rule. The specific requirements listed in § 257.90(e)(1) through (5) of the Rule are provided in Section 2 of this Annual Report and are in bold italic font, followed by a short narrative describing how each Rule requirement has been met.

2. 40 CFR § 257.90 Applicability

2.1 40 CFR § 257.90(a)

All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under §§ 257.90 through 257.98, except as provided in paragraph (g) of this section.

Energy has installed and certified a multi-unit groundwater monitoring system at the LEC Ash Ponds. The Ash Ponds are subject to the groundwater monitoring and corrective action requirements described under 40 CFR §§ 257.90 through 257.98. This document addresses the requirement for the Owner/Operator to prepare an Annual Report per § 257.90(e).

2.2 40 CFR § 257.90(e) – SUMMARY

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).

40 CFR 257.100(e)(5)(ii)

No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in § 257.90(e.)

This Annual Report describes monitoring completed and actions taken for the groundwater monitoring system at the LEC Ash Ponds as required by the Rule. Groundwater sampling and analysis was conducted per the requirements described in § 257.93, and the status of the groundwater monitoring program described in § 257.94 and § 257.95 is also provided in this report. This Annual Report documents the applicable groundwater-related activities completed from July 2019 through June 2020.

2.2.1 Status of the Groundwater Monitoring Program

The Ash Ponds were in the detection monitoring program through September 2019. The first annual assessment monitoring event occurred in December 2019 with laboratory analyses completed in January 2020, thus establishing an assessment monitoring program. The Ash Ponds have remained in the assessment monitoring program through June 2020.

2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report

2.2.2 Key Actions Completed

The 2018 – 2019 Annual Groundwater Monitoring and Corrective Action Report was completed in July 2019 for the time period through June 2019. Statistical evaluation was completed in July 2019 on analytical data from the March 2019 detection monitoring sampling event and statistically significant increases (SSI) over background concentrations were identified. An alternative source demonstration (ASD) was not successfully completed within 90 days for the March 2019 detection monitoring sampling event.

A semi-annual detection monitoring sampling event was completed in September 2019 for Appendix III constituents while the ASD was being pursued. Since the ASD was not successfully completed for the March 2019 detection monitoring sampling event, statistical evaluation was not completed on analytical data from the September 2019 detection monitoring sampling event.

The initial annual assessment monitoring sampling event was completed in December 2019, with laboratory analyses completed in January 2020, thus establishing an assessment monitoring program. This sampling event identified detected Appendix IV constituents for subsequent semi-annual sampling events in March and September 2020. Groundwater protection standards for detected Appendix IV constituents were established at that time. Semi-annual assessment monitoring sampling was completed in March 2020 for detected Appendix IV constituents identified during the December 2019 annual monitoring event. Statistical evaluation of the results from the March 2020 semi-annual assessment monitoring sampling event are due to be completed in July 2020 and will be reported in the next annual report.

2.2.3 Problems Encountered

No noteworthy problems (i.e., problems could include damaged wells, issues with sample collection or lack of sampling, or problems with analytical analysis) were encountered at the Ash Ponds from July 2019 through June 2020.

2.2.4 Actions to Resolve Problems

No problems were encountered at the Ash Ponds from July 2019 through June 2020; therefore, no actions to resolve the problems were required.

2.2.5 Project Key Activities for Upcoming Year

Key activities planned for July 2020 through June 2021 include the 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report, statistical analysis of assessment monitoring analytical data collected in March 2020, semi-annual assessment monitoring and subsequent statistical evaluations, and annual assessment monitoring.

2.3 40 CFR § 257.90(e) – INFORMATION

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

2.3.1 40 CFR § 257.90(e)(1) – CCR Unit and Monitoring Well Network

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

As required by § 257.90(e)(1), a map showing the locations of the CCR unit and associated upgradient and downgradient monitoring wells for the LEC Ash Ponds is included in this report as Figure 1.

2.3.2 40 CFR § 257.90(e)(2) – Monitoring System Changes

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

No monitoring wells were installed or decommissioned from July 2019 to June 2020.

2.3.3 40 CFR § 257.90(e)(3) – Summary of Sampling Events

In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

In accordance with § 257.95(b), one independent detection monitoring sample was collected from each background and downgradient monitoring well in September 2019. Two independent assessment monitoring samples were collected from each background and downgradient well in December 2019 (Appendix IV constituents only) and March 2020. A summary including sample names, dates of sample collection, field parameters, and monitoring data obtained for the groundwater monitoring program for the Ash Ponds is presented in Table I of this report.

2.3.4 40 CFR § 257.90(e)(4) – Monitoring Transition Narrative

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

Detection monitoring was conducted in accordance with § 257.94(b) through September 2019. SSIs identified during the March 2019 detection monitoring sampling event are provided in Table II. The initial annual assessment monitoring sampling event was completed in December 2019 in accordance with § 257.95(b) with laboratory results completed in January 2020, thus establishing an assessment monitoring program. Assessment monitoring samples from March 2020 were collected in accordance with § 257.95(d)(1).

2.3.5 40 CFR § 257.90(e)(5) – Other Requirements

Other information required to be included in the annual report as specified in § 257.90 through § 257.98.

This Annual Report documents activities conducted to comply with §§ 257.90 through 257.95 of the Rule. It is understood that there are supplemental references in §§ 257.90 through 257.98 that must be placed in the Annual Report. The following requirements include relevant and required information in the Annual Report for activities completed from July 2019 through June 2020.

2.3.5.1 40 CFR § 257.94(d)(3) – Demonstration for Alternative Detection Monitoring Frequency

The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

An alternative groundwater detection monitoring sampling and analysis frequency has not been established for this CCR unit; therefore, no demonstration or certification is applicable.

2.3.5.2 40 CFR § 257.94(e)(2) – Detection Monitoring Alternate Source Demonstration

The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under this section. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

An ASD was not successfully completed for the March 2019 detection monitoring sampling event.

2.3.5.3 40 CFR § 257.95(c)(3) – Demonstration for Alternative Assessment Monitoring Frequency

The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

An alternative groundwater assessment monitoring sampling and analysis frequency has not been established for this CCR unit; therefore, no demonstration or certification is applicable.

2.3.5.4 40 CFR § 257.95(d)(3) – Assessment Monitoring Concentrations and Groundwater Protection Standards

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

An assessment monitoring program has been implemented at the CCR unit since December 2019. One round of assessment monitoring sampling was completed between July 2019 and June 2020. Analytical results for both downgradient and upgradient wells are provided in Table I. The background concentrations (upper tolerance limits) and groundwater protection standards established for detected Appendix IV constituents for the Ash Ponds are included in Table III. The background concentrations and groundwater protection standards provided in Table III will be utilized for the statistical evaluations completed for the March 2020 semi-annual assessment monitoring sampling event.

2.3.5.5 40 CFR § 257.95(g)(3)(ii) – Assessment Monitoring Alternate Source Demonstration

Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in appendices III and IV to this part are at or below background as specified in paragraph (e) of this section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

No assessment monitoring ASD or certification was required prior to July 2020.

2.3.5.6 40 CFR § 257.96(a) – *Demonstration for Additional Time for Assessment of Corrective Measures*

Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

No assessment of corrective measures was required to be initiated from July 2019 through June 2020; therefore, no demonstration or certification is applicable for this unit.

TABLES

TABLE I
SUMMARY OF ANALYTICAL RESULTS - DETECTION AND ASSESSMENT MONITORING
EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER
ASH PONDS
ST. MARYS, KANSAS

Location	Upgradient			Downgradient																	
	MW-37			MW-38			MW-39						MW-40			MW-K			MW-L		
	833.290			832.626			830.615						831.358			842.6			843.05		
Measure Point (TOC)	MW-37	MW-37-120619	MW-37-031020	MW-38	MW-38-120619	MW-38-031020	MW-39	MW-39-120619	DUP-120619	MW-39-031120	DUP-031120	MW-40	MW-40-120619	MW-40-031120	MW-K	MW-K_120619	MW-K-031120	MW-L	MW-L_120619	MW-L-031120	
Sample Name																					
Sample Date	9/4/2019	12/6/2019	3/10/2020	9/4/2019	12/6/2019	3/10/2020	9/4/2019	12/06/2019	12/06/2019	3/11/2020	3/11/2020	9/4/2019	12/6/2019	3/11/2020	9/5/2019	12/06/2019	03/11/2020	9/5/2019	12/06/2019	03/11/2020	
Final Lab Report Date	9/16/2019	12/18/2019	3/20/2020	9/16/2019	12/18/2019	3/20/2020	9/16/2019	12/18/2019	12/18/2019	3/20/2020	3/20/2020	9/16/2019	12/18/2019	3/20/2020	9/16/2019	12/18/2019	3/20/2020	9/16/2019	12/18/2019	3/20/2020	
Final Lab Report Revision Date	N/A	N/A	3/31/2020	N/A	N/A	3/31/2020	N/A	N/A	N/A	3/31/2020	3/31/2020	N/A	N/A	3/31/2020	N/A	N/A	3/31/2020	N/A	N/A	3/31/2020	
Final Radiation Lab Report Date	N/A	1/2/2020	4/2/2020	N/A	1/2/2020	4/2/2020	N/A	1/2/2020	1/2/2020	4/2/2020	4/2/2020	N/A	1/2/2020	4/2/2020	N/A	1/2/2020	4/2/2020	N/A	1/2/2020	4/2/2020	
Final Radiation Lab Report Revision Date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lab Data Reviewed and Accepted	10/21/2019	1/9/2020	4/18/2020	10/21/2019	1/9/2020	4/18/2020	10/21/2019	1/9/2020	1/9/2020	4/18/2020	4/18/2020	10/21/2019	1/9/2020	4/18/2020	10/21/2019	1/9/2020	4/18/2020	10/21/2019	1/9/2020	4/18/2020	
Depth to Water (ft btoc)	6.55	9.61	6.79	10.65	14.04	14.93	8.84	11.49	-	13.70	-	9.38	11.96	14.38	20.76	24.24	25.12	23.03	24.24	25.81	
Temperature (Deg C)	15.88	13.26	8.83	16.41	14.49	10.59	17.45	14.83	-	10.34	-	18.08	14.92	11.79	17.85	14.72	10.17	19.27	14.76	10.38	
Conductivity (µS/cm)	836	1073	929	2352	2834	2476	3255	3009	-	3217	-	2958	2686	2693	5,467	4793	4708	4,396	3800	3790	
Turbidity (NTU)	2.95	1.61	5.22	0.62	0.96	0.44	0.52	0.92	-	0.61	-	0.73	2.68	0.32	7.88	1.06	0.66	0.97	0.71	0.51	
Boron, Total (mg/L)	1.75	-	2.0	4.70	-	5.39	4.46	-	-	5.0	4.76	5.45	-	4.93	1.73	-	1.8	2.26	-	2.6	
Calcium, Total (mg/L)	134	-	172	292	-	336	464	-	-	576	577	488	-	464	568	-	562	545	-	551	
Chloride (mg/L)	33.6	-	40.6	201	-	249	334	-	-	317	351	309	-	289	942	-	944	624	-	633	
Fluoride (mg/L)	0.35	0.27	0.27	2.0	5.0	4.9	<0.20	2.9	2.9	2.2	2.2	<0.20	1.6	1.6	3.7	2.9	2.7	<0.20	2.0	2.4	
Sulfate (mg/L)	287	-	319	1220	-	1290	1780	-	-	1730	1720	1650	-	1490	2350	-	2190	1880	-	1880	
pH (su)	7.2	-	7.0	7.4	-	7.6	7.2	-	-	7.2	7.3	7.2	-	7.2	7.2	-	7.3	7.1	-	7.3	
TDS (mg/L)	775	-	853	2440	-	2460	3480	-	-	3370	3450	3160	-	3090	5490	-	5020	4180	-	3880	
Antimony, Total (mg/L)	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	-	
Arsenic (mg/L)	-	0.0078	0.0065	-	0.015	0.015	-	0.014	0.014	0.0112	0.0112	-	0.015	0.014	-	0.076	0.067	-	0.029	0.024	
Barium, Total (mg/L)	-	0.061	0.065	-	0.031	0.0334	-	0.030	0.031	0.0338	0.0332	-	0.031	0.0321	-	0.040	0.043	-	0.037	0.035	
Beryllium, Total (mg/L)	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	-	
Cadmium, Total (mg/L)	-	<0.00050	-	-	<0.00050	-	-	<0.00050	<0.00050	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050	-	
Chromium, Total (mg/L)	-	<0.0050	-	-	<0.0050	-	-	<0.0050	<0.0050	-	-	-	<0.0050	-	-	<0.0050	-	-	<0.0050	-	
Cobalt, Total (mg/L)	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	-	
Lead, Total (mg/L)	-	<0.010	-	-	<0.010	-	-	<0.010	<0.010	-	-	-	<0.010	-	-	<0.010	-	-	<0.010	-	
Lithium, Total (mg/L)	-	0.017	0.0180	-	0.075	0.0744	-	0.045	0.042	0.038	0.0369	-	0.045	0.0415	-	0.089	0.077	-	0.057	0.057	
Molybdenum, Total (mg/L)	-	0.14	0.12	-	0.092	0.0822	-	0.19	0.19	0.179	0.180	-	0.11	0.0959	-	0.0096	0.016	-	0.055	0.049	
Selenium, Total (mg/L)	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	-	
Thallium, Total (mg/L)	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	-	<0.0010	-	-	<0.0050	-	-	<0.0050	-	
Mercury, Total (mg/L)	-	<0.00020	-	-	<0.00020	-	-	<0.00020	<0.00020	-	-	-	<0.00020	-	-	<0.00020	-	-	<0.00020	-	
Fluoride (mg/L)	-	0.27	0.27	-	5.0	4.9	-	2.9	2.9	2.2	2.2	-	1.6	1.6	-	2.9	2.7	-	2.0	2.4	
Radium-226 & 228 Combined (pCi/L)	-	0.0414 +/- 0.563 (0.967)	0.291 ± 0.430 (0.710)	-	1.84 +/- 0.756 (1.08)	0.245 ± 0.440 (0.721)	-	0.760 +/- 0.619 (1.01)	0.000 +/- 0.461 (0.943)	0.484 ± 0.547 (0.860)	0.116 ± 0.444 (0.706)	-	0.912 +/- 0.613 (0.929)	0.553 ± 0.488 (0.651)	-	0.547 ± 0.663 (1.12)	1.21 ± 0.534 (0.642)	-	0.482 ± 0.632 (0.980)	0.939 ± 0.500 (0.679)	

Notes & Abbreviations:
The September 2019 sampling event was for Appendix III constituents only. The March 2020 sampling event included Appendix IV constituents detected in the December 2019 sampling event, and all of the Appendix III constituents.
Radiological results are presented as activity plus or minus uncertainty with minimum detectable concentration (MDC).
Bold value: Detection above laboratory reporting limit or MDC.
µS/cm = micro Siemens per centimeter
ft btoc = feet below top of casing
Deg C = degrees Celsius
mg/L = milligrams per liter
N/A = Not Applicable
NTU = Nephelometric Turbidity Unit
pCi/L = picoCuries per liter
su = standard unit
TDS = total dissolved solids
TOC = top of casing

TABLE II
SUMMARY OF APPENDIX III SSIs
MARCH 2019 SAMPLING EVENT
LAWRENCE ENERGY CENTER
ASH PONDS

Well ID	Statistical Analysis Completed	Constituent
MW-38	July 2019	Boron
MW-39	July 2019	
MW-40	July 2019	
MW-38	July 2019	Calcium
MW-39	July 2019	
MW-40	July 2019	
MW-K	July 2019	
MW-L	July 2019	
MW-38	July 2019	Chloride
MW-39	July 2019	
MW-40	July 2019	
MW-K	July 2019	
MW-L	July 2019	
MW-38	July 2019	Fluoride
MW-39	July 2019	
MW-40	July 2019	
MW-K	July 2019	
MW-L	July 2019	
MW-38	July 2019	Sulfate
MW-39	July 2019	
MW-40	July 2019	
MW-K	July 2019	
MW-L	July 2019	
MW-39	July 2019	Total Dissolved Solids
MW-K	July 2019	
MW-L	July 2019	

Notes & Abbreviations:

SSIs = statistically significant increases

TABLE III
ANNUAL ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
 DECEMBER 2019 SAMPLING EVENT
 LAWRENCE ENERGY CENTER
 ASH PONDS

Well #	Background Value (UTL)*	GWPS (Higher of MCL / 40 CFR § 257.95(h)(2) or Upper Tolerance Limit)
CCR Appendix-IV Arsenic, Total (mg/L)		
MW-37 (upgradient)	0.00940	
MW-38		0.010
MW-39		0.010
MW-40		0.010
MW-K		0.010
MW-L		0.010
CCR Appendix-IV Barium, Total (mg/L)		
MW-37 (upgradient)	0.0601	
MW-38		2
MW-39		2
MW-40		2
MW-K		2
MW-L		2
CCR Appendix-IV Fluoride, Total (mg/L)		
MW-37 (upgradient)	0.455	
MW-38		4.0
MW-39		4.0
MW-40		4.0
MW-K		4.0
MW-L		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
MW-37 (upgradient)	0.0207	
MW-38		0.040
MW-39		0.040
MW-40		0.040
MW-K		0.040
MW-L		0.040
CCR Appendix-IV Molybdenum, Total (mg/L)		
MW-37 (upgradient)	0.140	
MW-38		0.140
MW-39		0.140
MW-40		0.140
MW-K		0.140
MW-L		0.140
CCR Appendix-IV Radium-226 & 228 Combined (pCi/L)		
MW-37 (upgradient)	2.215	
MW-38		5
MW-39		5
MW-40		5
MW-K		5
MW-L		5

Notes and Abbreviations:

* Background value for interwell evaluation based on data collected through March 2019

CCR = coal combustion residuals

GWPS = Groundwater Protection Standard

MCL = maximum contaminant level

mg/L = milligrams per Liter

NA = Not Applicable

pCi/L = picoCuries per Liter

RSL = Regional Screening Level

FIGURE



LEGEND

- ASH PONDS
- MONITORING WELL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE, APRIL 17, 2018.
3. AREA 2 POND (INACTIVE), AREA 3 POND (INACTIVE), AND AREA 4 POND (INACTIVE) ARE COLLECTIVELY KNOWN AS THE ASH PONDS.



HALEY ALDRICH EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

**ASH PONDS (INACTIVE)
MONITORING WELL
LOCATION MAP**

evergy JULY 2020
SCALE: AS SHOWN

November 2, 2022
Project No. 0204993-000



TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

FROM: Haley & Aldrich, Inc.
Steven F. Putrich, P.E., Principal Consultant – Engineering Principal
Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist

SUBJECT: 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report Addendum
Evergy Kansas Central, Inc.
Area 2 Pond, Area 3 Pond, and Area 4 Pond (inactive)
Lawrence Energy Center – Lawrence, Kansas

The Evergy Kansas Central, Inc. (Evergy) Area 2 Pond (inactive), Area 3 Pond (inactive), and Area 4 Pond (inactive; collectively, inactive Ash Ponds) at the Lawrence Energy Center is subject to the groundwater monitoring and corrective action requirements described under Code of Federal Regulations Title 40 (40 CFR) §257.90 through §257.98 (Rule). An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting the activities completed from July 2019 – June 2020 for the inactive Ash Ponds was completed and placed in the facility’s operating record on July 31, 2020, as required by the Rule. The Annual GWMCA Report contained the specific information listed in 40 CFR §257.90(e).

This report addendum has been prepared to supplement the operating record in recognition of comments received by Evergy from the U.S. Environmental Protection Agency (USEPA) on January 11, 2022. In addition to the information listed in 40 CFR §257.90(e), the USEPA indicated in their comments that the GWMCA Report should contain:

- Results of laboratory analysis of groundwater or other environmental media samples for the presence of constituents of Appendices III and IV to 40 CFR Part 257 (or of other constituents, such as those supporting characterization of site conditions that may ultimately affect a remedy);
- Required statistical analyses performed on those (laboratory analysis) results;
- Measured groundwater elevations; and
- Calculated groundwater flow rate and direction.

While this information is not specifically referred to in 40 CFR §257.90(e) for inclusion in the GWMCA Report, it has been routinely collected and maintained in Evergy’s files and is being provided in the attachments to this addendum. The applicable laboratory analysis reports for sampling events completed from July 2019 through June 2020 are included in Attachment 1, and a discussion of the applicable statistical analyses completed from July 2019 through June 2020 are included in

Attachment 2 of this addendum. For each of the sampling events completed from July 2019 through June 2020, the measured groundwater elevations, with calculated groundwater flow rates and directions, have been included in Attachment 3.

The Attachments to this addendum are described below:

- Attachment 1 – Laboratory Analytical Reports: Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the sampling events completed from July 2019 through June 2020 are provided.
- Attachment 2 – Statistical Analyses: Includes a discussion of the statistical analyses utilized along with a table summarizing the statistical outputs (e.g., frequency of detection, maximum detection, variance, standard deviation, coefficient of variance, outlier tests, trends, upper and lower confidence limits, and comparison against Groundwater Protection Standards), and supporting backup for statistical analyses completed from July 2019 through June 2020 included:
 - Overview of the July 2019 statistical analysis for data obtained in the March 2019 sampling event; and
 - Explanation of statistical analysis related to the September 2019 sampling event.
- Attachment 3 – Groundwater Potentiometric Maps: Includes the measured groundwater elevations at each well and the generalized groundwater flow direction and calculated flow rate. Maps for the sampling events completed in September and December 2019 and March 2020 are provided.

ATTACHMENT 1
Laboratory Analytical Reports

ATTACHMENT 1-1
September 2019 Sampling Event
Laboratory Analytical Report

September 16, 2019

Adam Kneeling
Haley & Aldrich, Inc.
400 E. Van Buren St
Suite 545
Phoenix, AZ 85004

RE: Project: LEC INACTIVE ASH PONDS CCR
Pace Project No.: 60314116

Dear Adam Kneeling:

Enclosed are the analytical results for sample(s) received by the laboratory on September 06, 2019. 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,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: Bob Beck, Kansas City Power & Light Company
HEATH HORYNA, WESTAR ENERGY
JARED MORRISON, WESTAR ENERGY
Danielle Zinmaster, Haley & Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 19-016-0

Arkansas Drinking Water

Illinois Certification #: 004455

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212018-1

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-18-11

Utah Certification #: KS000212018-8

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60314116001	MW-40	Water	09/04/19 14:59	09/06/19 15:20
60314116002	MW-39	Water	09/04/19 13:47	09/06/19 15:20
60314116003	MW-38	Water	09/04/19 16:16	09/06/19 15:20
60314116004	MW-37	Water	09/04/19 18:04	09/06/19 15:20
60314116005	MW-K	Water	09/05/19 12:55	09/06/19 15:20
60314116006	MW-L	Water	09/05/19 14:13	09/06/19 15:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60314116001	MW-40	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
60314116002	MW-39	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
60314116003	MW-38	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
60314116004	MW-37	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MGS, MJK	3	PASI-K
60314116005	MW-K	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MGS, MJK	3	PASI-K
60314116006	MW-L	EPA 200.7	JDE	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		EPA 300.0	MJK	3	PASI-K

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Sample: MW-40		Lab ID: 60314116001		Collected: 09/04/19 14:59		Received: 09/06/19 15:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Boron, Total Recoverable	5450	ug/L	100	1	09/10/19 16:39	09/11/19 10:57	7440-42-8		
Calcium, Total Recoverable	488000	ug/L	200	1	09/10/19 16:39	09/11/19 10:57	7440-70-2		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3160	mg/L	40.0	1		09/10/19 13:02			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/10/19 10:26		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	309	mg/L	100	100		09/11/19 19:13	16887-00-6		
Fluoride	<0.20	mg/L	0.20	1		09/11/19 17:14	16984-48-8	M1	
Sulfate	1650	mg/L	100	100		09/11/19 19:13	14808-79-8		

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-39								
Lab ID: 60314116002								
Collected: 09/04/19 13:47 Received: 09/06/19 15:20 Matrix: Water								
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron, Total Recoverable	4460	ug/L	100	1	09/10/19 16:39	09/11/19 10:59	7440-42-8	
Calcium, Total Recoverable	464000	ug/L	200	1	09/10/19 16:39	09/11/19 10:59	7440-70-2	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Total Dissolved Solids	3480	mg/L	66.7	1		09/10/19 13:03		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/10/19 10:27		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Chloride	334	mg/L	100	100		09/11/19 20:27	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/11/19 19:57	16984-48-8	
Sulfate	1780	mg/L	100	100		09/11/19 20:27	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Sample: MW-38		Lab ID: 60314116003		Collected: 09/04/19 16:16		Received: 09/06/19 15:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Boron, Total Recoverable	4700	ug/L	100	1	09/10/19 16:39	09/11/19 11:02	7440-42-8		
Calcium, Total Recoverable	292000	ug/L	200	1	09/10/19 16:39	09/11/19 11:02	7440-70-2		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	2440	mg/L	40.0	1		09/10/19 13:03			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.4	Std. Units	0.10	1		09/10/19 10:29		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	201	mg/L	20.0	20		09/11/19 20:57	16887-00-6		
Fluoride	2.0	mg/L	0.20	1		09/11/19 20:42	16984-48-8		
Sulfate	1220	mg/L	100	100		09/11/19 21:12	14808-79-8		

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Sample: MW-37		Lab ID: 60314116004		Collected: 09/04/19 18:04	Received: 09/06/19 15:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Boron, Total Recoverable	1750	ug/L	100	1	09/10/19 16:39	09/11/19 11:04	7440-42-8	
Calcium, Total Recoverable	134000	ug/L	200	1	09/10/19 16:39	09/11/19 11:04	7440-70-2	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	775	mg/L	10.0	1		09/10/19 13:03		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/10/19 10:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	33.6	mg/L	5.0	5		09/12/19 14:07	16887-00-6	
Fluoride	0.35	mg/L	0.20	1		09/11/19 21:56	16984-48-8	
Sulfate	287	mg/L	20.0	20		09/11/19 22:11	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Sample: MW-K		Lab ID: 60314116005		Collected: 09/05/19 12:55	Received: 09/06/19 15:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Boron, Total Recoverable	1730	ug/L	100	1	09/10/19 16:39	09/11/19 11:06	7440-42-8	
Calcium, Total Recoverable	568000	ug/L	200	1	09/10/19 16:39	09/11/19 11:06	7440-70-2	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	5490	mg/L	100	1		09/11/19 13:39		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/10/19 10:32		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	942	mg/L	100	100		09/11/19 23:11	16887-00-6	
Fluoride	3.7	mg/L	0.20	1		09/11/19 22:41	16984-48-8	
Sulfate	2350	mg/L	200	200		09/12/19 14:55	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Sample: MW-L	Lab ID: 60314116006	Collected: 09/05/19 14:13		Received: 09/06/19 15:20		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Boron, Total Recoverable	2260	ug/L	100	1	09/10/19 16:39	09/11/19 11:09	7440-42-8	
Calcium, Total Recoverable	545000	ug/L	200	1	09/10/19 16:39	09/11/19 11:09	7440-70-2	M1
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	4180	mg/L	66.7	1		09/11/19 13:40		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		09/10/19 10:33		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	624	mg/L	100	100		09/11/19 23:55	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/11/19 23:25	16984-48-8	
Sulfate	1880	mg/L	100	100		09/11/19 23:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608466 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004, 60314116005, 60314116006

METHOD BLANK: 2485612 Matrix: Water
 Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004, 60314116005, 60314116006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	<100	100	09/11/19 10:55	
Calcium	ug/L	<200	200	09/11/19 10:55	

LABORATORY CONTROL SAMPLE: 2485613

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	1020	102	85-115	
Calcium	ug/L	10000	10500	105	85-115	

MATRIX SPIKE SAMPLE: 2485614

Parameter	Units	60314116006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	2260	1000	3120	86	70-130	
Calcium	ug/L	545000	10000	537000	-80	70-130 M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2485615 2485616

Parameter	Units	60314218001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	0.37 mg/L	1000	1000	1370	1320	101	95	70-130	4	20	
Calcium	ug/L	151 mg/L	10000	10000	161000	156000	100	48	70-130	3	20 M1	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608257

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004

METHOD BLANK: 2484941

Matrix: Water

Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/10/19 13:00	

LABORATORY CONTROL SAMPLE: 2484942

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	995	100	80-120	

SAMPLE DUPLICATE: 2484943

Parameter	Units	60314117001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	11000	10700	2	10	

SAMPLE DUPLICATE: 2484944

Parameter	Units	60314116001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3160	3120	1	10	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608542

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60314116005, 60314116006

METHOD BLANK: 2486059

Matrix: Water

Associated Lab Samples: 60314116005, 60314116006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/11/19 13:39	

LABORATORY CONTROL SAMPLE: 2486060

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

SAMPLE DUPLICATE: 2486061

Parameter	Units	60314116005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	5490	5290	4	10	

SAMPLE DUPLICATE: 2486062

Parameter	Units	60313369021 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	196	196	0	10	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608287 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004, 60314116005, 60314116006

SAMPLE DUPLICATE: 2485035

Parameter	Units	60313981001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.4	8.5	2	5	H6

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608675 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004, 60314116005, 60314116006

METHOD BLANK: 2486554 Matrix: Water
 Associated Lab Samples: 60314116001, 60314116002, 60314116003, 60314116004, 60314116005, 60314116006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/11/19 12:24	
Fluoride	mg/L	<0.20	0.20	09/11/19 12:24	
Sulfate	mg/L	<1.0	1.0	09/11/19 12:24	

LABORATORY CONTROL SAMPLE: 2486555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2486556 2486557

Parameter	Units	60314116001		60314116002		60314116003		60314116004		60314116005		60314116006	
		MS Result	MSD Result	MS Result	MSD Result	MS Result	MSD Result	MS Result	MSD Result	MS Result	MSD Result	MS Result	MSD Result
Chloride	mg/L	309	500	500	784	778	95	94	80-120	1	15		
Fluoride	mg/L	<0.20	2.5	2.5	1.3	1.4	52	56	80-120	8	15 M1		
Sulfate	mg/L	1650	500	500	2200	2150	110	100	80-120	2	15 E		

MATRIX SPIKE SAMPLE: 2486558

Parameter	Units	60314117004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	<0.20	2.5	<0.20	0	80-120	M1
Sulfate	mg/L	610	500	1130	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

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

QC Batch: 608942 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60314116004, 60314116005

METHOD BLANK: 2487470 Matrix: Water

Associated Lab Samples: 60314116004, 60314116005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/12/19 10:12	
Sulfate	mg/L	<1.0	1.0	09/12/19 10:12	

LABORATORY CONTROL SAMPLE: 2487471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2487472 2487473

Parameter	Units	60314116004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Chloride	mg/L	33.6	25	25	61.7	61.4	112	111	80-120	1	15	
Sulfate	mg/L	287	25	25	381	383	224	233	80-120	1	15	E,M1

MATRIX SPIKE SAMPLE: 2487474

Parameter	Units	60314218003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	41.9	25	74.7	131	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.

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QUALIFIERS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

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

H6 Analysis initiated outside of the 15 minute EPA required holding time.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60314116

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60314116001	MW-40	EPA 200.7	608466	EPA 200.7	608606
60314116002	MW-39	EPA 200.7	608466	EPA 200.7	608606
60314116003	MW-38	EPA 200.7	608466	EPA 200.7	608606
60314116004	MW-37	EPA 200.7	608466	EPA 200.7	608606
60314116005	MW-K	EPA 200.7	608466	EPA 200.7	608606
60314116006	MW-L	EPA 200.7	608466	EPA 200.7	608606
60314116001	MW-40	SM 2540C	608257		
60314116002	MW-39	SM 2540C	608257		
60314116003	MW-38	SM 2540C	608257		
60314116004	MW-37	SM 2540C	608257		
60314116005	MW-K	SM 2540C	608542		
60314116006	MW-L	SM 2540C	608542		
60314116001	MW-40	SM 4500-H+B	608287		
60314116002	MW-39	SM 4500-H+B	608287		
60314116003	MW-38	SM 4500-H+B	608287		
60314116004	MW-37	SM 4500-H+B	608287		
60314116005	MW-K	SM 4500-H+B	608287		
60314116006	MW-L	SM 4500-H+B	608287		
60314116001	MW-40	EPA 300.0	608675		
60314116002	MW-39	EPA 300.0	608675		
60314116003	MW-38	EPA 300.0	608675		
60314116004	MW-37	EPA 300.0	608675		
60314116004	MW-37	EPA 300.0	608942		
60314116005	MW-K	EPA 300.0	608675		
60314116005	MW-K	EPA 300.0	608942		
60314116006	MW-L	EPA 300.0	608675		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO# : 60314116
60314116

Client Name: Wester

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other zplc

Thermometer Used: T-301 Type of Ice: ~~Wet~~ Blue None

Cooler Temperature (°C): As-read 4.4, 5.2 Corr. Factor 0.0 Corrected 4.4, 5.2

Date and initials of person examining contents: 9/7/19 SD

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A

Required Client Information:

Company: WESTAR ENERGY
 Address: 818 Kansas Ave
 Topeka, KS 66612
 Email To: brandon.l.griffin@westarenergy.com
 Phone: 785-575-8135 Fax:
 Requested Due Date/TAT: 7 day

Section B

Required Project Information:

Report To: Adam Kneeling
 Copy To: Jared Morrison
 Purchase Order No.: 10LEC-0000015648
 Project Name: LEC Inactive Ash Ponds CCR
 Project Number:

Section C

Invoice Information:

Attention:
 Company Name:
 Address:
 Pace Quote Reference:
 Pace Project Manager: Heather Wilson 913-563-1407
 Pace Profile #: 9655, 2

Page: | of |

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location

STATE: KS

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
		MATRIX	CODE			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other	200.7 Total Metals*	300: Cl, F, SO ₄	2540C TDS			4500 H+B
		DRINKING WATER	DW			DATE	TIME	DATE	TIME																	
1	MW-40	WT	G					9/4/19	1459		3	2								X	X	X	X			001
2	MW-39	WT	G					9/4/19	1347		3	2								X	X	X	X			002
3	MW-38	WT	G					9/4/19	1616		3	2								X	X	X	X			003
4	MW-37	WT	G					9/4/19	1804		3	2								X	X	X	X			004
5	MW-K	WT	G					9/5/19	1255		3	2								X	X	X	X			005
6	MW-L	WT	G					9/5/19	1413		3	2								X	X	X	X			006

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
200.7 Total Metals*: B, Ca	Misha Miller-Gilmore / HIA	9/6/19	1300	Nathan Brownpace	9/6/19	1520	4.4	Y	Y	Y
							5.2			

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: Misha Miller-Gilmore					
SIGNATURE of SAMPLER: <i>[Signature]</i>	DATE Signed (MM/DD/YY): 9/6/19				

*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.

ATTACHMENT 1-2
December 2019 Sampling Event
Laboratory Analytical Report

December 18, 2019

Adam Kneeling
Haley & Aldrich, Inc.
400 E. Van Buren St
Suite 545
Phoenix, AZ 85004

RE: Project: LEC CCR
Pace Project No.: 60323644

Dear Adam Kneeling:

Enclosed are the analytical results for sample(s) received by the laboratory on December 09, 2019. 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,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: Bob Beck, Kansas City Power & Light Company
HEATH HORYNA, WESTAR ENERGY
Andrew Hare, KCP&L and Westar, Evergy Companies
Laura Hines, KCP&L & Westar, Evergy Companies
Jake Humphrey, KCP&L and Westar, Evergy Companies
Tabitha Hylton, KCP&L & Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
JARED MORRISON, KCP&L and Westar, Evergy
Companies
Melissa Michels, KCP&L & Westar, Evergy Companies

Danielle Zinmaster, Haley & Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC CCR

Pace Project No.: 60323644

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 19-016-0

Arkansas Drinking Water

Illinois Certification #: 004455

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-19-12

Utah Certification #: KS000212018-8

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC CCR

Pace Project No.: 60323644

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60323644001	MW-37-120619	Water	12/06/19 09:25	12/09/19 16:10
60323644002	MW-38-120619	Water	12/06/19 10:45	12/09/19 16:10
60323644003	MW-K-120619	Water	12/06/19 12:00	12/09/19 16:10
60323644004	MW-L-120619	Water	12/06/19 13:00	12/09/19 16:10
60323644005	MW-39-120619	Water	12/06/19 14:00	12/09/19 16:10
60323644006	DUP-120619	Water	12/06/19 14:15	12/09/19 16:10
60323644007	MW-40-120619	Water	12/06/19 15:40	12/09/19 16:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: LEC CCR
Pace Project No.: 60323644

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60323644001	MW-37-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644002	MW-38-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644003	MW-K-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644004	MW-L-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644005	MW-39-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644006	DUP-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323644007	MW-40-120619	EPA 200.7	HKC	5	PASI-K
		EPA 200.8	LRS	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Sample: MW-37-120619		Lab ID: 60323644001	Collected: 12/06/19 09:25	Received: 12/09/19 16:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.061	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:37	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:37	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:37	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:37	7439-92-1	
Lithium	0.017	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:37	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7440-36-0	
Arsenic, Total Recoverable	0.0078	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 12:52	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7440-48-4	
Molybdenum, Total Recoverable	0.14	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:52	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:09	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Fluoride	0.27	mg/L	0.20	1		12/12/19 21:55	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-38-120619								
Lab ID: 60323644002								
Collected: 12/06/19 10:45 Received: 12/09/19 16:10 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Total Recoverable	0.031	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:40	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:40	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:40	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:40	7439-92-1	
Lithium	0.075	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:40	7439-93-2	
200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7440-36-0	
Arsenic, Total Recoverable	0.015	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 12:54	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7440-48-4	
Molybdenum, Total Recoverable	0.092	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 12:54	7440-28-0	
245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:11	7439-97-6	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0								
Fluoride	5.0	mg/L	0.20	1		12/12/19 22:11	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Sample: MW-K-120619		Lab ID: 60323644003	Collected: 12/06/19 12:00	Received: 12/09/19 16:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.040	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:46	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:46	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:46	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:46	7439-92-1	
Lithium	0.089	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:46	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:01	7440-36-0	
Arsenic, Total Recoverable	0.076	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:01	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 13:01	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:01	7440-48-4	
Molybdenum, Total Recoverable	0.0096	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:01	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:01	7782-49-2	
Thallium, Total Recoverable	<0.0050	mg/L	0.0050	5	12/11/19 16:10	12/18/19 13:38	7440-28-0	D3
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:18	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Fluoride	2.9	mg/L	0.20	1		12/12/19 22:27	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Sample: MW-L-120619		Lab ID: 60323644004	Collected: 12/06/19 13:00	Received: 12/09/19 16:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.037	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:49	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:49	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:49	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:49	7439-92-1	
Lithium	0.057	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:49	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:03	7440-36-0	
Arsenic, Total Recoverable	0.029	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:03	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 13:03	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:03	7440-48-4	
Molybdenum, Total Recoverable	0.055	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:03	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:03	7782-49-2	
Thallium, Total Recoverable	<0.0050	mg/L	0.0050	5	12/11/19 16:10	12/18/19 13:40	7440-28-0	D3
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:20	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Fluoride	2.0	mg/L	0.20	1		12/12/19 23:14	16984-48-8	

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Sample: MW-39-120619	Lab ID: 60323644005	Collected: 12/06/19 14:00	Received: 12/09/19 16:10	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Total Recoverable	0.030	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:51	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:51	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:51	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:51	7439-92-1	
Lithium	0.045	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:51	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7440-36-0	
Arsenic, Total Recoverable	0.014	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 13:06	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7440-48-4	
Molybdenum, Total Recoverable	0.19	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:06	7440-28-0	
245.1 Mercury								
Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:22	7439-97-6	
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Fluoride	2.9	mg/L	0.20	1		12/12/19 23:30	16984-48-8	

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ANALYTICAL RESULTS

Project: LEC CCR
Pace Project No.: 60323644

Sample: DUP-120619		Lab ID: 60323644006	Collected: 12/06/19 14:15	Received: 12/09/19 16:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.031	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:53	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:53	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:53	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:53	7439-92-1	
Lithium	0.042	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:53	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7440-36-0	
Arsenic, Total Recoverable	0.014	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 13:08	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7440-48-4	
Molybdenum, Total Recoverable	0.19	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:08	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:25	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Fluoride	2.9	mg/L	0.20	1		12/12/19 23:46	16984-48-8	

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ANALYTICAL RESULTS

Project: LEC CCR

Pace Project No.: 60323644

Sample: MW-40-120619	Lab ID: 60323644007	Collected: 12/06/19 15:40	Received: 12/09/19 16:10	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Total Recoverable	0.031	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:55	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 14:00	12/13/19 16:55	7440-41-7	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/11/19 14:00	12/13/19 16:55	7440-47-3	
Lead, Total Recoverable	<0.010	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:55	7439-92-1	
Lithium	0.045	mg/L	0.010	1	12/11/19 14:00	12/13/19 16:55	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7440-36-0	
Arsenic, Total Recoverable	0.015	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/11/19 16:10	12/18/19 13:10	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7440-48-4	
Molybdenum, Total Recoverable	0.11	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/11/19 16:10	12/18/19 13:10	7440-28-0	
245.1 Mercury								
Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	<0.20	ug/L	0.20	1	12/12/19 15:00	12/16/19 12:27	7439-97-6	
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Fluoride	1.6	mg/L	0.20	1		12/13/19 00:18	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC CCR
Pace Project No.: 60323644

QC Batch: 627969 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

METHOD BLANK: 2559568 Matrix: Water
Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	12/16/19 11:50	

LABORATORY CONTROL SAMPLE: 2559569

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.7	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2559570 2559571

Parameter	Units	60323643002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.20	5	5	2.5	2.5	51	49	70-130	2	20	M1

MATRIX SPIKE SAMPLE: 2559572

Parameter	Units	60323644007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	4.8	96	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC CCR

Pace Project No.: 60323644

QC Batch:	627594	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
Associated Lab Samples:	60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007		

METHOD BLANK:	2558035	Matrix:	Water
Associated Lab Samples:	60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	12/13/19 16:11	
Beryllium	mg/L	<0.0010	0.0010	12/13/19 16:11	
Chromium	mg/L	<0.0050	0.0050	12/13/19 16:11	
Lead	mg/L	<0.010	0.010	12/13/19 16:11	
Lithium	mg/L	<0.010	0.010	12/13/19 16:11	

LABORATORY CONTROL SAMPLE: 2558037

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	85-115	
Beryllium	mg/L	1	0.97	97	85-115	
Chromium	mg/L	1	1.0	100	85-115	
Lead	mg/L	1	1.0	102	85-115	
Lithium	mg/L	1	0.98	98	85-115	

MATRIX SPIKE SAMPLE: 2558038

Parameter	Units	60323643001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.077	1	1.1	103	70-130	
Beryllium	mg/L	<0.0010	1	0.99	99	70-130	
Chromium	mg/L	<0.0050	1	1.0	101	70-130	
Lead	mg/L	<0.010	1	0.98	98	70-130	
Lithium	mg/L	0.024	1	1.0	101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2558039 2558040

Parameter	Units	60323009001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	340 ug/L	1	1	1.4	1.3	103	97	70-130	4	20	
Beryllium	mg/L	ND	1	1	0.97	0.93	97	93	70-130	4	20	
Chromium	mg/L	5.6 ug/L	1	1	0.98	0.94	97	93	70-130	4	20	
Lead	mg/L	ND	1	1	0.95	0.91	95	91	70-130	4	20	
Lithium	mg/L	192 ug/L	1	1	1.2	1.2	102	97	70-130	4	20	

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QUALITY CONTROL DATA

Project: LEC CCR

Pace Project No.: 60323644

QC Batch:	627660	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007		

METHOD BLANK: 2558261 Matrix: Water
Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	12/18/19 12:34	
Arsenic	mg/L	<0.0010	0.0010	12/18/19 12:34	
Cadmium	mg/L	<0.00050	0.00050	12/18/19 12:34	
Cobalt	mg/L	<0.0010	0.0010	12/18/19 12:34	
Molybdenum	mg/L	<0.0010	0.0010	12/18/19 12:34	
Selenium	mg/L	<0.0010	0.0010	12/18/19 12:34	
Thallium	mg/L	<0.0010	0.0010	12/18/19 12:34	

LABORATORY CONTROL SAMPLE: 2558262

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.04	0.039	96	85-115	
Arsenic	mg/L	0.04	0.039	98	85-115	
Cadmium	mg/L	0.04	0.039	97	85-115	
Cobalt	mg/L	0.04	0.040	100	85-115	
Molybdenum	mg/L	0.04	0.040	99	85-115	
Selenium	mg/L	0.04	0.039	96	85-115	
Thallium	mg/L	0.04	0.037	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2558263 2558264

Parameter	Units	60323643002		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec				
Antimony	mg/L	<0.0010	0.04	0.04	0.038	0.038	96	96	70-130	0	20	
Arsenic	mg/L	0.026	0.04	0.04	0.066	0.066	101	101	70-130	0	20	
Cadmium	mg/L	<0.00050	0.04	0.04	0.036	0.035	89	88	70-130	0	20	
Cobalt	mg/L	0.0028	0.04	0.04	0.042	0.042	98	99	70-130	1	20	
Molybdenum	mg/L	0.0043	0.04	0.04	0.048	0.048	108	109	70-130	1	20	
Selenium	mg/L	<0.0010	0.04	0.04	0.038	0.039	94	95	70-130	1	20	
Thallium	mg/L	<0.0010	0.04	0.04	0.036	0.036	90	90	70-130	0	20	

MATRIX SPIKE SAMPLE: 2558265

Parameter	Units	60323644007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	0.04	0.038	94	70-130	
Arsenic	mg/L	0.015	0.04	0.058	109	70-130	
Cadmium	mg/L	<0.00050	0.04	0.034	85	70-130	

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QUALITY CONTROL DATA

Project: LEC CCR

Pace Project No.: 60323644

MATRIX SPIKE SAMPLE:		2558265					
Parameter	Units	60323644007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	0.04	0.038	96	70-130	
Molybdenum	mg/L	0.11	0.04	0.16	119	70-130	
Selenium	mg/L	<0.0010	0.04	0.041	101	70-130	
Thallium	mg/L	<0.0010	0.04	0.037	92	70-130	

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QUALITY CONTROL DATA

Project: LEC CCR

Pace Project No.: 60323644

QC Batch: 627689 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

METHOD BLANK: 2558364 Matrix: Water
 Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	12/12/19 13:46	

METHOD BLANK: 2560357 Matrix: Water
 Associated Lab Samples: 60323644001, 60323644002, 60323644003, 60323644004, 60323644005, 60323644006, 60323644007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	12/13/19 09:25	

LABORATORY CONTROL SAMPLE: 2558365

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	97	90-110	

LABORATORY CONTROL SAMPLE: 2560358

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2558366 2558367

Parameter	Units	60323643001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	<0.20	2.5	2.5	2.8	2.9	110	112	80-120	2	15	

MATRIX SPIKE SAMPLE: 2558368

Parameter	Units	60323644006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L		2.9	2.5	5.9	119	80-120

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: LEC CCR

Pace Project No.: 60323644

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC CCR

Pace Project No.: 60323644

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323644001	MW-37-120619	EPA 200.7	627594	EPA 200.7	627722
60323644002	MW-38-120619	EPA 200.7	627594	EPA 200.7	627722
60323644003	MW-K-120619	EPA 200.7	627594	EPA 200.7	627722
60323644004	MW-L-120619	EPA 200.7	627594	EPA 200.7	627722
60323644005	MW-39-120619	EPA 200.7	627594	EPA 200.7	627722
60323644006	DUP-120619	EPA 200.7	627594	EPA 200.7	627722
60323644007	MW-40-120619	EPA 200.7	627594	EPA 200.7	627722
60323644001	MW-37-120619	EPA 200.8	627660	EPA 200.8	627730
60323644002	MW-38-120619	EPA 200.8	627660	EPA 200.8	627730
60323644003	MW-K-120619	EPA 200.8	627660	EPA 200.8	627730
60323644004	MW-L-120619	EPA 200.8	627660	EPA 200.8	627730
60323644005	MW-39-120619	EPA 200.8	627660	EPA 200.8	627730
60323644006	DUP-120619	EPA 200.8	627660	EPA 200.8	627730
60323644007	MW-40-120619	EPA 200.8	627660	EPA 200.8	627730
60323644001	MW-37-120619	EPA 245.1	627969	EPA 245.1	628012
60323644002	MW-38-120619	EPA 245.1	627969	EPA 245.1	628012
60323644003	MW-K-120619	EPA 245.1	627969	EPA 245.1	628012
60323644004	MW-L-120619	EPA 245.1	627969	EPA 245.1	628012
60323644005	MW-39-120619	EPA 245.1	627969	EPA 245.1	628012
60323644006	DUP-120619	EPA 245.1	627969	EPA 245.1	628012
60323644007	MW-40-120619	EPA 245.1	627969	EPA 245.1	628012
60323644001	MW-37-120619	EPA 300.0	627689		
60323644002	MW-38-120619	EPA 300.0	627689		
60323644003	MW-K-120619	EPA 300.0	627689		
60323644004	MW-L-120619	EPA 300.0	627689		
60323644005	MW-39-120619	EPA 300.0	627689		
60323644006	DUP-120619	EPA 300.0	627689		
60323644007	MW-40-120619	EPA 300.0	627689		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO# : 60323644



60323644

Client Name: Westar Energy

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-298 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.1/2.8 Corr. Factor 0.0 Corrected 2.1/2.8

Date and initials of person examining contents:

P 12/9/19

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:			
Company: WESTAR ENERGY		Report To: Brandon Griffin → Adam Kneeling		Attention:			
Address: 818 Kansas Ave		Copy To: Jared Morrison		Company Name:		REGULATORY AGENCY	
Topeka, KS 66612 <i>A.kneeling@haleyeldrich.com</i>				Address:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Email To: brandon.l.griffin@westarenergy.com		Purchase Order No.: 10LEC-0000015648		Pace Quote Reference:			
Phone: 785-575-8135	Fax:	Project Name:		Pace Project Manager: Heather Wilson 913-563-1407		Site Location	
Requested Due Date/TAT: 7 day		Project Number:		Pace Profile #: 9655, 1		STATE: KS	

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test Y/N	Requested Analysis Filtered (Y/N)					Residual Chlorine (Y/N)					
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other		200.7 Total Metals*	200.8 Total Metals**	245.1 Total Hg	300: Cl, F SO4	4500 H+B		2540C TDS				
					DATE	TIME	DATE	TIME																						
1	Mw-37-120619	WT	WT		12/6	925			3	X	X																			
2	Mw-38-120619	WT	WT		12/6	1045			3	X	X																			
3	Mw-K-120619	WT	WT		12/6	1200			3	X	X																			
4	Mw-L-120619	WT	WT		12/6	1300			3	X	X																			
5	Mw-39-120619	WT	WT		12/6	1400			3	X	X																			
6	App Dup-120619	WT	WT		12/6	1415			3	X	X																			
7	Mw-40-120619	WT	WT		12/6	1540			3	X	X																			
8																														
9																														
10																														
11																														
12																														

60323644
Pace Project No./ Lab I.D.

App. 14
ONLY

001
002
003
004
005
006
007

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
200.7 Total Metals* B, Ca, Ba, Be, Cr, Pb, Li				<i>DPMPHSE</i>	12/9/19	1610	2.1	X	N	Y
200.8 Total Metals**: Sb, As, Cd, Co, Mo, Se, Tl							2.8	X	N	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:						
SIGNATURE of SAMPLER:		DATE Signed (MM/DD/YY):				

Pace Container Order #569726

Order By :	Ship To :	Return To:
Company <u>Every Kansas Central, Inc.</u>	Company <u>Haley & Aldrich</u>	Company <u>Pace Analytical Kansas</u>
Contact <u>Kneeling, Adam</u>	Contact <u>Misha Miller-Gilmore</u>	Contact <u>Wilson, Heather</u>
Email <u>akneeling@haleyaldrich.com</u>	Email _____	Email <u>heather.wilson@pacelabs.com</u>
Address <u>400 E. Van Buren St</u>	Address <u>11020 King St</u>	Address <u>9608 Loiret Blvd.</u>
Address 2 <u>Suite 545</u>	Address 2 <u>Suite 450</u>	Address 2 _____
City <u>Phoenix</u>	City <u>Overland Park</u>	City <u>Lenexa</u>
State <u>AZ</u> Zip <u>85004</u>	State <u>KS</u> Zip <u>66210</u>	State <u>KS</u> Zip <u>66219</u>
Phone <u>(602)760-2424</u>	Phone <u>(913) 242-5491</u>	Phone <u>1(913)563-1407</u>

Info			
Project Name <u>LEC CCR- App III & IV (Lenexa)</u>	Due Date <u>12/02/2019</u>	Profile <u>9655, 1</u>	Quote _____
Project <u>Wilson, Heather</u>	Return _____	Carrier <u>Most Economical</u>	Locatio <u>KS</u>

Trip Blanks

Include Trip Blanks

Bottle Labels

Blank

Pre-Printed No Sample IDs

Pre-Printed With Sample IDs

Bottles

Boxed Cases

Individually Wrapped

Grouped By Sample

Return Shipping Labels

No Shipper

With Shipper

Misc

Sampling Instructions

Custody Seal

Temp. Blanks

Coolers _____

Syringes _____

Extra Bubble Wrap

Short Hold/Rush

DI

USDA Regulated Soils

COC Options

Number of Blanks

Pre-Printed

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
7	WT	Metals	1-1L plastic w/HNO3	7	0	100719-2EIZ	
7	WT	300.0 Anions/pH	1L plastic unpreserved	7	0	102819-2AED	
7	WT	TDS by 2540C	1L Plastic Unpres.	7	0	102819-2AED	
1	OT	FEDEX Prepaid Return-Lenexa lab	None	0	0		

Hazard Shipping Placard In Place : NO

LAB USE:

*Sample receiving hours are Mon-Fri 7:00am-6:00pm and Sat 8:00am-2:00pm unless special arrangements are made with your project manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

Ship Date :	<u>12/02/2019</u>
Prepared By:	<u>Skylar</u>
Verified By:	_____

Sample

CLIENT USE (Optional):

PP COC (1), PP labels w/o sample IDs
Lenexa return
Client needs to arrive on 12/3 in the morning at the latest

Date Rec'd:	_____
Received By:	_____
Verified By:	<u>Page 21 of 21</u>

January 02, 2020

Adam Kneeling
Haley & Aldrich, Inc.
400 E. Van Buren St
Suite 545
Phoenix, AZ 85004

RE: Project: LEC CCR GROUNDWATER
Pace Project No.: 60323761

Dear Adam Kneeling:

Enclosed are the analytical results for sample(s) received by the laboratory on December 09, 2019. 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.

Revision 1 - This report replaces the December 27, 2019 report. This project was revised on January 2, 2020 to correct the Radium Sum Calculation as per client specifications. (Greensburg, PA)

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

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: Bob Beck, Kansas City Power & Light Company
HEATH HORYNA, WESTAR ENERGY
Andrew Hare, KCP&L and Westar, Evergy Companies
Laura Hines, KCP&L & Westar, Evergy Companies
Jake Humphrey, KCP&L and Westar, Evergy Companies

Tabitha Hylton, KCP&L & Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
JARED MORRISON, KCP&L and Westar, Evergy
Companies
Melissa Michels, KCP&L & Westar, Evergy Companies
Danielle Zinmaster, Haley & Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60323761001	MW-37_120619	Water	12/06/19 09:25	12/09/19 17:15
60323761002	MW-38_120619	Water	12/06/19 10:45	12/09/19 17:15
60323761003	MW-K_120619	Water	12/06/19 12:00	12/09/19 17:15
60323761004	MW-L_120619	Water	12/06/19 13:00	12/09/19 17:15
60323761005	MW-39_120619	Water	12/06/19 14:10	12/09/19 17:15
60323761006	DUP_120619	Water	12/06/19 14:15	12/09/19 17:15
60323761007	MW-40_120619	Water	12/06/19 15:40	12/09/19 17:15

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SAMPLE ANALYTE COUNT

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60323761001	MW-37_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761002	MW-38_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761003	MW-K_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761004	MW-L_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761005	MW-39_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761006	DUP_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323761007	MW-40_120619	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-37_120619 **Lab ID: 60323761001** Collected: 12/06/19 09:25 Received: 12/09/19 17:15 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 ± 0.370 (0.782) C:NA T:84%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	0.0414 ± 0.424 (0.967) C:78% T:80%	pCi/L	12/26/19 15:13	15262-20-1	
Total Radium	Total Radium Calculation	0.0414 ± 0.563 (0.967)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-38_120619 **Lab ID: 60323761002** Collected: 12/06/19 10:45 Received: 12/09/19 17:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.281 ± 0.399 (0.676) C:NA T:92%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	1.56 ± 0.642 (1.08) C:79% T:76%	pCi/L	12/26/19 15:19	15262-20-1	
Total Radium	Total Radium Calculation	1.84 ± 0.756 (1.08)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-K_120619 **Lab ID: 60323761003** Collected: 12/06/19 12:00 Received: 12/09/19 17:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0680 ± 0.400 (0.816) C:NA T:76%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	0.479 ± 0.529 (1.12) C:74% T:79%	pCi/L	12/26/19 15:19	15262-20-1	
Total Radium	Total Radium Calculation	0.547 ± 0.663 (1.12)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-L_120619 **Lab ID: 60323761004** Collected: 12/06/19 13:00 Received: 12/09/19 17:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.166 ± 0.421 (0.924) C:NA T:91%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	0.482 ± 0.471 (0.980) C:78% T:84%	pCi/L	12/26/19 15:19	15262-20-1	
Total Radium	Total Radium Calculation	0.482 ± 0.632 (0.980)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-39_120619 **Lab ID: 60323761005** Collected: 12/06/19 14:10 Received: 12/09/19 17:15 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 ± 0.363 (0.700) C:NA T:91%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	0.653 ± 0.501 (1.01) C:77% T:84%	pCi/L	12/26/19 15:19	15262-20-1	
Total Radium	Total Radium Calculation	0.760 ± 0.619 (1.01)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: DUP_120619 **Lab ID: 60323761006** Collected: 12/06/19 14:15 Received: 12/09/19 17:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.0492 ± 0.225 (0.530) C:NA T:99%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	-0.108 ± 0.402 (0.943) C:82% T:80%	pCi/L	12/26/19 15:13	15262-20-1	
Total Radium	Total Radium Calculation	0.000 ± 0.461 (0.943)	pCi/L	01/02/20 10:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Sample: MW-40_120619 **Lab ID: 60323761007** Collected: 12/06/19 15:40 Received: 12/09/19 17:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.307 ± 0.401 (0.662) C:NA T:79%	pCi/L	12/26/19 11:45	13982-63-3	
Radium-228	EPA 904.0	0.605 ± 0.464 (0.929) C:80% T:82%	pCi/L	12/26/19 15:14	15262-20-1	
Total Radium	Total Radium Calculation	0.912 ± 0.613 (0.929)	pCi/L	01/02/20 10:23	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

QC Batch:	375684	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	60323761001, 60323761002, 60323761003, 60323761004, 60323761005, 60323761006, 60323761007		

METHOD BLANK:	1822421	Matrix:	Water
Associated Lab Samples:	60323761001, 60323761002, 60323761003, 60323761004, 60323761005, 60323761006, 60323761007		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0624 ± 0.271 (0.618) C:78% T:95%	pCi/L	12/26/19 15:14	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

QC Batch:	375685	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	60323761001, 60323761002, 60323761003, 60323761004, 60323761005, 60323761006, 60323761007		

METHOD BLANK:	1822422	Matrix:	Water
Associated Lab Samples:	60323761001, 60323761002, 60323761003, 60323761004, 60323761005, 60323761006, 60323761007		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0398 ± 0.206 (0.428) C:NA T:92%	pCi/L	12/26/19 11:32	

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

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QUALIFIERS

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC CCR GROUNDWATER

Pace Project No.: 60323761

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323761001	MW-37_120619	EPA 903.1	375685		
60323761002	MW-38_120619	EPA 903.1	375685		
60323761003	MW-K_120619	EPA 903.1	375685		
60323761004	MW-L_120619	EPA 903.1	375685		
60323761005	MW-39_120619	EPA 903.1	375685		
60323761006	DUP_120619	EPA 903.1	375685		
60323761007	MW-40_120619	EPA 903.1	375685		
60323761001	MW-37_120619	EPA 904.0	375684		
60323761002	MW-38_120619	EPA 904.0	375684		
60323761003	MW-K_120619	EPA 904.0	375684		
60323761004	MW-L_120619	EPA 904.0	375684		
60323761005	MW-39_120619	EPA 904.0	375684		
60323761006	DUP_120619	EPA 904.0	375684		
60323761007	MW-40_120619	EPA 904.0	375684		
60323761001	MW-37_120619	Total Radium Calculation	377482		
60323761002	MW-38_120619	Total Radium Calculation	377482		
60323761003	MW-K_120619	Total Radium Calculation	377482		
60323761004	MW-L_120619	Total Radium Calculation	377482		
60323761005	MW-39_120619	Total Radium Calculation	377482		
60323761006	DUP_120619	Total Radium Calculation	377482		
60323761007	MW-40_120619	Total Radium Calculation	377482		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: _____ of _____

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: WESTAR ENERGY		Report To: Brandon Griffin Adam Kneeling		Attention:	
Address: 818 Kansas Ave		Copy To: Jared Morrison		Company Name:	
Topeka, KS 66612 Email To: brandon.l.griffin@westarenergy.com <u>AKneeling@haleyadriich.com</u>		Purchase Order No.: 10LEC-0000015648		Address:	
Phone: 785-575-8135 Fax:		Project Name:		Pace Quote Reference:	
Requested Due Date/TAT: 15 day		Project Number:		Pace Project Manager: Heather Wilson 913-563-1407	
				Pace Profile #: 9655, 1	

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location _____
STATE: KS

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
		MATRIX	CODE			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other	Radium-226	Radium-228			Total Radium
		DRINKING WATER	DW			DATE	TIME	DATE	TIME																
1	MW-37-120619			WT		12/6	925				2		X					X	X	X					
2	MW-38-120619			WT		12/6	1045				2		X					X	X	X					
3	MW-K-120619			WT		12/6	1200				2		X					X	X	X					
4	MW-L-120619			WT		12/6	1300				2		X					X	X	X					
5	MW-39-120619			WT		12/6	1410				2		X					X	X	X					
6	Dup-120619			WT		12/6	1415				2		X					X	X	X					
7	MW-40-120619			WT		12/6	1540				2		X					X	X	X					
8																									
9																									
10																									
11																									
12																									

App. III

App. IV only

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Eli Fredrickson	12/06/19	12:00	PAVE	12/9/19	1715		N	Y	Y

SAMPLER NAME AND SIGNATURE: <u>Eli Fredrickson</u>		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Eli Fredrickson</u>					
SIGNATURE of SAMPLER: <u>Eli Fredrickson</u>	DATE Signed (MM/DD/YY): <u>12/06/19</u>				

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Westcar Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1215 2983 4005

Label _____
LIMS Login _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue (None)

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

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and initials of person examining contents:
				<u>1000391</u>	<u>12/10/19 JWB</u>
Chain of Custody Present:	/				
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):		/			
Rush Turn Around Time Requested:		/			
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests			/		
All containers have been checked for preservation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>PHL2</u>	
All containers meet method preservation requirements.	/			Initial when completed: <u>JWB</u>	Date/time of preservation: _____
				Lot # of added preservative: _____	
Headspace in VOA Vials (>6mm):			/		
Trip Blank Present:		/			
Trip Blank Custody Seals Present		/			
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>JWB</u>	Date: <u>12/10/19</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Quality Control Sample Performance Assessment

Test: Ra-226
Analyst: MK1
Date: 12/17/2019
Batch ID: 51478
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1822422
MB concentration:	0.040
M/B Counting Uncertainty:	0.206
MB MDC:	0.428
MB Numerical Performance Indicator:	0.38
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/D (Y or N)?	N
	LCSS51478	LCSD51478
Count Date:	12/26/2019	
Spike I.D.:	19-022	
Spike Concentration (pCi/mL):	32.114	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.650	
Target Conc. (pCi/L, g, F):	4.944	
Uncertainty (Calculated):	0.232	
Result (pCi/L, g, F):	4.190	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.951	
Numerical Performance Indicator:	-1.51	
Percent Recovery:	84.75%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	73%	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	12/9/2019	
Sample I.D.:	30339692001	
Sample MS I.D.:	30339692001MS	
Sample MSD I.D.:		
Spike I.D.:	19-022	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	32.115	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.664	
MS Target Conc. (pCi/L, g, F):	9.676	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.455	
MSD Spike Uncertainty (calculated):		
Sample Result:	-0.040	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.137	
Sample Matrix Spike Result:	12.089	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.519	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	3.022	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	125.36%	
MSD Percent Recovery:		
MS Status vs Numerical Indicator:	N/A	
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:	Pass	
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:	136%	
MS/MSD Lower % Recovery Limits:	71%	

Duplicate Sample Assessment		
Sample I.D.:	30339683001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.:	30339683001DUP	
Sample Result (pCi/L, g, F):	0.680	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.402	
Sample Duplicate Result (pCi/L, g, F):	0.266	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.376	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	1.473	30339683001
Duplicate RPD:	87.44%	30339683001DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Fail	
% RPD Limit:	32%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Sample Matrix Spike Result:		
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
Duplicate Numerical Performance Indicator:		
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:		
MS/MSD Duplicate Status vs Numerical Indicator:		
MS/MSD Duplicate Status vs RPD:		
% RPD Limit:		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the RL.

Comments:

***Batch must be re-prepped due to unacceptable precision.

*LRL too low
RNP 87%*

OK 12-26-19



Quality Control Sample Performance Assessment

Test: Ra-228
Analyst: VAL
Date: 12/19/2019
Worklist: 51477
Matrix: WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1822421
MB concentration:	0.062
M/B 2 Sigma CSU:	0.271
MB MDC:	0.618
MB Numerical Performance Indicator:	0.45
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS51477	LCSD51477
Count Date:	12/26/2019	
Spike I.D.:	19-057	
Decay Corrected Spike Concentration (pCi/mL):	35.767	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.826	
Target Conc. (pCi/L, g, F):	4.332	
Uncertainty (Calculated):	0.312	
Result (pCi/L, g, F):	3.345	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.929	
Numerical Performance Indicator:	-1.97	
Percent Recovery:	77.22%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	60%	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	12/9/2019	
Sample I.D.:	30339692001	
Sample MS I.D.:	30339692001MS	
Sample MSD I.D.:		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	35.965	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.802	
MS Target Conc. (pCi/L, g, F):	8.970	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.646	
MSD Spike Uncertainty (calculated):		
Sample Result:	-0.459	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.341	
Sample Matrix Spike Result:	8.048	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	1.688	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	-0.494	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	94.83%	
MSD Percent Recovery:		
MS Status vs Numerical Indicator:	Pass	
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:	Pass	
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:	135%	
MS/MSD Lower % Recovery Limits:	60%	

Duplicate Sample Assessment		
Sample I.D.:	30339969001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.:	30339969001DUP	
Sample Result (pCi/L, g, F):	-0.101	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.332	
Sample Duplicate Result (pCi/L, g, F):	0.358	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.366	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-1.818	30339969001
Duplicate RPD:	357.43%	30339969001DUP
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	36%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Sample Matrix Spike Result:		
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
Duplicate Numerical Performance Indicator:		
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:		
MS/MSD Duplicate Status vs Numerical Indicator:		
MS/MSD Duplicate Status vs RPD:		
% RPD Limit:		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Handwritten signature/initials

ATTACHMENT 1-3
March 2020 Sampling Event
Laboratory Analytical Report

March 31, 2020

Melissa Michels
Evergy, Inc.
818 Kansas Avenue
Topeka, KS 66612

RE: Project: LEC INACTIVE ASH PONDS CCR
Pace Project No.: 60331435

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on March 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

Revised Report REV_1

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

Sincerely,



Jasmine Amerin
jasmine.amerin@pacelabs.com
(913)599-5665
Project Manager

Enclosures

cc: Bob Beck, Evergy
Andrew Hare, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Tabitha Hylton, KCP&L & Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
Danielle Zinmaster, Haley & Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 200030

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-19-12

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60331435001	MW-37-031020	Water	03/10/20 15:25	03/11/20 14:20
60331435002	MW-38-031020	Water	03/10/20 17:00	03/11/20 14:20
60331435003	MW-K-031120	Water	03/11/20 08:10	03/11/20 14:20
60331435004	MW-L-031120	Water	03/11/20 09:30	03/11/20 14:20
60331435005	MW-39-031120	Water	03/11/20 10:45	03/11/20 14:20
60331435006	DUP-031120	Water	03/11/20 10:55	03/11/20 14:20
60331435007	MW-40-031120	Water	03/11/20 12:40	03/11/20 14:20

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SAMPLE ANALYTE COUNT

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60331435001	MW-37-031020	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS, JWR	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, LDB	3	PASI-K
60331435002	MW-38-031020	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331435003	MW-K-031120	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331435004	MW-L-031120	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331435005	MW-39-031120	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331435006	DUP-031120	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331435007	MW-40-031120	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	2	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Date: March 31, 2020

Amended report revised to reflect re-runs on samples MW-37-031020 and MW-39-031120 in addition to reporting in units of mg/L.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: Evergy Kansas Central, Inc.

Date: March 31, 2020

General Information:

7 samples were analyzed for EPA 200.7 by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 644386

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60331435003,60331435007

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

- MS (Lab ID: 2618359)
 - Calcium
- MS (Lab ID: 2618361)
 - Calcium
- MSD (Lab ID: 2618360)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: Evergy Kansas Central, Inc.

Date: March 31, 2020

General Information:

7 samples were analyzed for EPA 200.8 by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: Evergy Kansas Central, Inc.

Date: March 31, 2020

General Information:

7 samples were analyzed for SM 2540C by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

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

- MW-37-031020 (Lab ID: 60331435001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: Evergy Kansas Central, Inc.

Date: March 31, 2020

General Information:

7 samples were analyzed for SM 4500-H+B by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- DUP-031120 (Lab ID: 60331435006)
- MW-37-031020 (Lab ID: 60331435001)
- MW-38-031020 (Lab ID: 60331435002)
- MW-39-031120 (Lab ID: 60331435005)
- MW-40-031120 (Lab ID: 60331435007)
- MW-K-031120 (Lab ID: 60331435003)
- MW-L-031120 (Lab ID: 60331435004)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: Evergy Kansas Central, Inc.

Date: March 31, 2020

General Information:

7 samples were analyzed for EPA 300.0 by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-37-031020	Lab ID: 60331435001	Collected: 03/10/20 15:25	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.065	mg/L	0.0050	1	03/24/20 10:15	03/25/20 15:39	7440-39-3	
Boron, Total Recoverable	2.0	mg/L	0.10	1	03/24/20 10:15	03/25/20 15:39	7440-42-8	
Calcium, Total Recoverable	172	mg/L	0.20	1	03/24/20 10:15	03/25/20 15:39	7440-70-2	
Lithium	0.018	mg/L	0.010	1	03/24/20 10:15	03/25/20 15:39	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.0065	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:07	7440-38-2	
Molybdenum, Total Recoverable	0.12	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:07	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	873	mg/L	10.0	1		03/12/20 14:44		
Total Dissolved Solids	853	mg/L	10.0	1		03/23/20 15:55		H5
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.0	Std. Units	0.10	1		03/24/20 13:31		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	37.9	mg/L	10.0	10		03/12/20 17:10	16887-00-6	
Chloride	40.6	mg/L	20.0	20		03/23/20 22:04	16887-00-6	
Fluoride	0.27	mg/L	0.20	1		03/12/20 16:41	16984-48-8	
Fluoride	0.27	mg/L	0.20	1		03/23/20 21:49	16984-48-8	
Sulfate	313	mg/L	50.0	50		03/12/20 17:39	14808-79-8	
Sulfate	319	mg/L	20.0	20		03/23/20 22:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-38-031020	Lab ID: 60331435002	Collected: 03/10/20 17:00		Received: 03/11/20 14:20		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City						
Barium, Total Recoverable	0.033	mg/L	0.0050	1	03/17/20 15:59	03/18/20 14:45	7440-39-3	
Boron, Total Recoverable	5.4	mg/L	0.10	1	03/17/20 15:59	03/18/20 14:45	7440-42-8	
Calcium, Total Recoverable	336	mg/L	0.20	1	03/17/20 15:59	03/18/20 14:45	7440-70-2	
Lithium	0.074	mg/L	0.010	1	03/17/20 15:59	03/18/20 14:45	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City						
Arsenic, Total Recoverable	0.015	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:15	7440-38-2	
Molybdenum, Total Recoverable	0.082	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:15	7439-98-7	
2540C Total Dissolved Solids		Analytical Method: SM 2540C Pace Analytical Services - Kansas City						
Total Dissolved Solids	2460	mg/L	40.0	1		03/12/20 14:44		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		03/18/20 14:23		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City						
Chloride	249	mg/L	50.0	50		03/12/20 19:06	16887-00-6	
Fluoride	4.9	mg/L	0.20	1		03/12/20 18:08	16984-48-8	
Sulfate	1290	mg/L	100	100		03/13/20 13:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-K-031120	Lab ID: 60331435003	Collected: 03/11/20 08:10	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.043	mg/L	0.0050	1	03/17/20 15:59	03/18/20 14:48	7440-39-3	
Boron, Total Recoverable	1.8	mg/L	0.10	1	03/17/20 15:59	03/18/20 14:48	7440-42-8	
Calcium, Total Recoverable	562	mg/L	0.20	1	03/17/20 15:59	03/18/20 14:48	7440-70-2	M1
Lithium	0.077	mg/L	0.010	1	03/17/20 15:59	03/18/20 14:48	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.067	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:21	7440-38-2	
Molybdenum, Total Recoverable	0.016	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:21	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	5020	mg/L	125	1		03/13/20 11:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.3	Std. Units	0.10	1		03/18/20 14:29		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	944	mg/L	50.0	50		03/12/20 19:50	16887-00-6	
Fluoride	2.7	mg/L	0.20	1		03/12/20 19:21	16984-48-8	
Sulfate	2190	mg/L	200	200		03/13/20 14:13	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-L-031120	Lab ID: 60331435004	Collected: 03/11/20 09:30	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.035	mg/L	0.0050	1	03/17/20 15:59	03/18/20 14:59	7440-39-3	
Boron, Total Recoverable	2.6	mg/L	0.10	1	03/17/20 15:59	03/18/20 14:59	7440-42-8	
Calcium, Total Recoverable	551	mg/L	0.20	1	03/17/20 15:59	03/18/20 14:59	7440-70-2	
Lithium	0.057	mg/L	0.010	1	03/17/20 15:59	03/18/20 14:59	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.024	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:24	7440-38-2	
Molybdenum, Total Recoverable	0.049	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:24	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	3880	mg/L	100	1		03/13/20 11:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.3	Std. Units	0.10	1		03/18/20 14:30		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	633	mg/L	50.0	50		03/12/20 20:34	16887-00-6	
Fluoride	2.4	mg/L	0.20	1		03/12/20 20:05	16984-48-8	
Sulfate	1880	mg/L	200	200		03/13/20 14:29	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-39-031120	Lab ID: 60331435005	Collected: 03/11/20 10:45	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.033	mg/L	0.0050	1	03/24/20 10:15	03/25/20 15:46	7440-39-3	
Boron, Total Recoverable	5.0	mg/L	0.10	1	03/24/20 10:15	03/25/20 15:46	7440-42-8	
Calcium, Total Recoverable	576	mg/L	0.20	1	03/24/20 10:15	03/25/20 15:46	7440-70-2	
Lithium	0.037	mg/L	0.010	1	03/24/20 10:15	03/25/20 15:46	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.011	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:26	7440-38-2	
Molybdenum, Total Recoverable	0.18	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:26	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	3370	mg/L	66.7	1		03/13/20 11:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.2	Std. Units	0.10	1		03/19/20 09:24		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	317	mg/L	50.0	50		03/12/20 21:18	16887-00-6	
Fluoride	2.2	mg/L	0.20	1		03/12/20 20:49	16984-48-8	
Sulfate	1730	mg/L	200	200		03/13/20 14:45	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: DUP-031120	Lab ID: 60331435006	Collected: 03/11/20 10:55	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.033	mg/L	0.0050	1	03/17/20 15:59	03/18/20 15:04	7440-39-3	
Boron, Total Recoverable	4.8	mg/L	0.10	1	03/17/20 15:59	03/18/20 15:04	7440-42-8	
Calcium, Total Recoverable	577	mg/L	0.20	1	03/17/20 15:59	03/18/20 15:04	7440-70-2	
Lithium	0.037	mg/L	0.010	1	03/17/20 15:59	03/18/20 15:04	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.011	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:29	7440-38-2	
Molybdenum, Total Recoverable	0.18	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:29	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	3450	mg/L	66.7	1		03/13/20 11:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.3	Std. Units	0.10	1		03/19/20 09:32		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	351	mg/L	50.0	50		03/12/20 22:31	16887-00-6	
Fluoride	2.2	mg/L	0.20	1		03/12/20 22:02	16984-48-8	
Sulfate	1720	mg/L	200	200		03/13/20 15:32	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Sample: MW-40-031120	Lab ID: 60331435007	Collected: 03/11/20 12:40	Received: 03/11/20 14:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Barium, Total Recoverable	0.032	mg/L	0.0050	1	03/17/20 15:59	03/18/20 15:07	7440-39-3	
Boron, Total Recoverable	4.9	mg/L	0.10	1	03/17/20 15:59	03/18/20 15:07	7440-42-8	
Calcium, Total Recoverable	464	mg/L	0.20	1	03/17/20 15:59	03/18/20 15:07	7440-70-2	M1
Lithium	0.041	mg/L	0.010	1	03/17/20 15:59	03/18/20 15:07	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Pace Analytical Services - Kansas City								
Arsenic, Total Recoverable	0.014	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:31	7440-38-2	
Molybdenum, Total Recoverable	0.096	mg/L	0.0010	1	03/18/20 09:38	03/19/20 15:31	7439-98-7	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	3090	mg/L	66.7	1		03/13/20 11:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.2	Std. Units	0.10	1		03/19/20 09:34		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	289	mg/L	50.0	50		03/12/20 23:15	16887-00-6	
Fluoride	1.6	mg/L	0.20	1		03/12/20 22:46	16984-48-8	
Sulfate	1490	mg/L	200	200		03/13/20 15:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch:	644386	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435002, 60331435003, 60331435004, 60331435006, 60331435007

METHOD BLANK: 2618357 Matrix: Water
Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	03/18/20 14:41	
Boron	mg/L	<0.10	0.10	03/18/20 14:41	
Calcium	mg/L	<0.20	0.20	03/18/20 14:41	
Lithium	mg/L	<0.010	0.010	03/18/20 14:41	

LABORATORY CONTROL SAMPLE: 2618358

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.98	98	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	10.2	102	85-115	
Lithium	mg/L	1	0.98	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2618359 2618360

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60331435003 Result	Spike Conc.	Spike Conc.	Result						
Barium	mg/L	0.043	1	1	1.0	1.0	100	99	70-130	1	20
Boron	mg/L	1.8	1	1	2.7	2.7	98	94	70-130	2	20
Calcium	mg/L	562	10	10	576	558	138	-43	70-130	3	20 M1
Lithium	mg/L	0.077	1	1	1.1	1.1	102	101	70-130	1	20

MATRIX SPIKE SAMPLE: 2618361

Parameter	Units	60331435007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.032	1	0.99	95	70-130	
Boron	mg/L	4.9	1	5.7	80	70-130	
Calcium	mg/L	464	10	462	-20	70-130	M1
Lithium	mg/L	0.041	1	1.0	96	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 645571

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001, 60331435005

METHOD BLANK: 2622240

Matrix: Water

Associated Lab Samples: 60331435001, 60331435005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	03/25/20 15:36	
Boron	mg/L	<0.10	0.10	03/25/20 15:36	
Calcium	mg/L	<0.20	0.20	03/25/20 15:36	
Lithium	mg/L	<0.010	0.010	03/25/20 15:36	

LABORATORY CONTROL SAMPLE: 2622241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	10.5	105	85-115	
Lithium	mg/L	1	1.0	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2622242 2622243

Parameter	Units	60331875001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Barium	mg/L	16.7 ug/L	1	1	1	1.1	103	104	70-130	0	20	
Boron	mg/L	ND	1	1	1.0	1.1	99	101	70-130	2	20	
Calcium	mg/L	42700 ug/L	10	10	52.8	53.1	101	104	70-130	1	20	
Lithium	mg/L	44.8 ug/L	1	1	1.1	1.1	103	104	70-130	1	20	

MATRIX SPIKE SAMPLE: 2622244

Parameter	Units	60331955002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	ND	1	1.0	103	70-130	
Boron	mg/L	ND	1	0.97	97	70-130	
Calcium	mg/L	ND	10	10.4	104	70-130	
Lithium	mg/L	ND	1	1.0	105	70-130	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch:	644518	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

METHOD BLANK:	2618776	Matrix:	Water
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Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0010	0.0010	03/19/20 15:05	
Molybdenum	mg/L	<0.0010	0.0010	03/19/20 15:05	

LABORATORY CONTROL SAMPLE: 2618777

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.04	0.039	98	85-115	
Molybdenum	mg/L	0.04	0.040	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2618778 2618779

Parameter	Units	60331435001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0065	0.04	0.04	0.048	0.047	103	101	70-130	2	20	
Molybdenum	mg/L	0.12	0.04	0.04	0.17	0.16	122	117	70-130	1	20	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 643527

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001, 60331435002

METHOD BLANK: 2614869

Matrix: Water

Associated Lab Samples: 60331435001, 60331435002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/12/20 14:44	

LABORATORY CONTROL SAMPLE: 2614870

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 2614871

Parameter	Units	60331300001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2410	2490	3	10	

SAMPLE DUPLICATE: 2614872

Parameter	Units	60331438006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	24900	25300	2	10	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 643742

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

METHOD BLANK: 2615836

Matrix: Water

Associated Lab Samples: 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/13/20 11:10	

LABORATORY CONTROL SAMPLE: 2615837

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

SAMPLE DUPLICATE: 2615838

Parameter	Units	60331477008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	797	799	0	10	

SAMPLE DUPLICATE: 2615839

Parameter	Units	60331478001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	508	508	0	10	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 645498	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001

METHOD BLANK: 2622089 Matrix: Water

Associated Lab Samples: 60331435001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/23/20 15:55	

LABORATORY CONTROL SAMPLE: 2622090

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 2622091

Parameter	Units	60331435001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	853	899	5	10	H1

SAMPLE DUPLICATE: 2622092

Parameter	Units	60332166010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	214	215	1	10	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 644593

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435002, 60331435003, 60331435004

SAMPLE DUPLICATE: 2619185

Parameter	Units	60331267002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	7.2	4	5	H6

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 644682

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435005, 60331435006, 60331435007

SAMPLE DUPLICATE: 2619321

Parameter	Units	60331435005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	1	5	H6

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 645273

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001

SAMPLE DUPLICATE: 2621668

Parameter	Units	60331435001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.2	3	5	H6

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 643357 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

METHOD BLANK: 2614192 Matrix: Water
 Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/12/20 07:28	
Fluoride	mg/L	<0.20	0.20	03/12/20 07:28	
Sulfate	mg/L	<1.0	1.0	03/12/20 07:28	

METHOD BLANK: 2615595 Matrix: Water
 Associated Lab Samples: 60331435001, 60331435002, 60331435003, 60331435004, 60331435005, 60331435006, 60331435007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/13/20 12:54	
Fluoride	mg/L	<0.20	0.20	03/13/20 12:54	
Sulfate	mg/L	<1.0	1.0	03/13/20 12:54	

LABORATORY CONTROL SAMPLE: 2614193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

LABORATORY CONTROL SAMPLE: 2615596

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2614194 2614195

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		20145436001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	8.5	5	5	14.1	14.1	111	112	80-120	1	15		
Fluoride	mg/L	ND	2.5	2.5	2.9	3.0	110	112	80-120	2	15		
Sulfate	mg/L	3.1	5	5	8.8	9.0	114	116	80-120	1	15		

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

MATRIX SPIKE SAMPLE:		2614196					
Parameter	Units	60331435001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	40.6	50	88.5	101	80-120	
Fluoride	mg/L	0.27	2.5	3.1	112	80-120	
Sulfate	mg/L	319	250	587	110	80-120	

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

QC Batch: 645341

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60331435001

METHOD BLANK: 2621834

Matrix: Water

Associated Lab Samples: 60331435001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/23/20 12:05	
Fluoride	mg/L	<0.20	0.20	03/23/20 12:05	
Sulfate	mg/L	<1.0	1.0	03/23/20 12:05	

METHOD BLANK: 2622225

Matrix: Water

Associated Lab Samples: 60331435001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/24/20 08:07	
Fluoride	mg/L	<0.20	0.20	03/24/20 08:07	
Sulfate	mg/L	<1.0	1.0	03/24/20 08:07	

LABORATORY CONTROL SAMPLE: 2621835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

LABORATORY CONTROL SAMPLE: 2622226

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2621836

2621837

Parameter	Units	60332331001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	177	1000	1000	1110	1150	94	97	80-120	3	15		
Fluoride	mg/L	ND	500	500	487	486	97	97	80-120	0	15		
Sulfate	mg/L	1880	1000	1000	2890	2910	101	103	80-120	1	15		

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QUALITY CONTROL DATA

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

MATRIX SPIKE SAMPLE:		2621838					
Parameter	Units	60332423003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.7	5	7.9	104	80-120	
Fluoride	mg/L	<0.075	2.5	2.8	114	80-120	
Sulfate	mg/L	33.7	25	58.6	100	80-120	

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QUALIFIERS

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

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

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC INACTIVE ASH PONDS CCR

Pace Project No.: 60331435

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331435001	MW-37-031020	EPA 200.7	645571	EPA 200.7	645733
60331435002	MW-38-031020	EPA 200.7	644386	EPA 200.7	644506
60331435003	MW-K-031120	EPA 200.7	644386	EPA 200.7	644506
60331435004	MW-L-031120	EPA 200.7	644386	EPA 200.7	644506
60331435005	MW-39-031120	EPA 200.7	645571	EPA 200.7	645733
60331435006	DUP-031120	EPA 200.7	644386	EPA 200.7	644506
60331435007	MW-40-031120	EPA 200.7	644386	EPA 200.7	644506
60331435001	MW-37-031020	EPA 200.8	644518	EPA 200.8	644596
60331435002	MW-38-031020	EPA 200.8	644518	EPA 200.8	644596
60331435003	MW-K-031120	EPA 200.8	644518	EPA 200.8	644596
60331435004	MW-L-031120	EPA 200.8	644518	EPA 200.8	644596
60331435005	MW-39-031120	EPA 200.8	644518	EPA 200.8	644596
60331435006	DUP-031120	EPA 200.8	644518	EPA 200.8	644596
60331435007	MW-40-031120	EPA 200.8	644518	EPA 200.8	644596
60331435001	MW-37-031020	SM 2540C	643527		
60331435001	MW-37-031020	SM 2540C	645498		
60331435002	MW-38-031020	SM 2540C	643527		
60331435003	MW-K-031120	SM 2540C	643742		
60331435004	MW-L-031120	SM 2540C	643742		
60331435005	MW-39-031120	SM 2540C	643742		
60331435006	DUP-031120	SM 2540C	643742		
60331435007	MW-40-031120	SM 2540C	643742		
60331435001	MW-37-031020	SM 4500-H+B	645273		
60331435002	MW-38-031020	SM 4500-H+B	644593		
60331435003	MW-K-031120	SM 4500-H+B	644593		
60331435004	MW-L-031120	SM 4500-H+B	644593		
60331435005	MW-39-031120	SM 4500-H+B	644682		
60331435006	DUP-031120	SM 4500-H+B	644682		
60331435007	MW-40-031120	SM 4500-H+B	644682		
60331435001	MW-37-031020	EPA 300.0	643357		
60331435001	MW-37-031020	EPA 300.0	645341		
60331435002	MW-38-031020	EPA 300.0	643357		
60331435003	MW-K-031120	EPA 300.0	643357		
60331435004	MW-L-031120	EPA 300.0	643357		
60331435005	MW-39-031120	EPA 300.0	643357		
60331435006	DUP-031120	EPA 300.0	643357		
60331435007	MW-40-031120	EPA 300.0	643357		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60331435
60331435

Client Name: Evergy Kansas Central

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

Tracking #: Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other Ziploc

Thermometer Used: T-299 Type of Ice: Wet Blue None

Cooler Temperature (C): As-read 1.6 Corr. Factor +1.0 Corrected 2.6

Date and initials of person examining contents: 3-11-20 HS

Temperature should be above freezing to 6C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and Notes. Rows include Chain of Custody, Short Hold Time, Rush Turn Around Time, Containers used, etc.

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Date:

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a Legal Document. All relevant fields must be completed accurately.

Section A

Required Client Information:

Section B

Required Project Information:

Section C

Invoice Information:

Page: _____ of _____

Company: EVERGY KANSAS CENTRAL, INC.	Report To: Melissa Michels	Attention: Accounts Payable
Address: Lawrence Energy Center (LEC) 818 Kansas Ave, Topeka, KS 66612	Copy To: Jared Morrison, Jake Humphrey, Laura Hines Andrew Hare, Tabitha Hylton, Samantha Kaney	Company Name: EVERGY KANSAS CENTRAL, INC.
Email To: melissa.michels@evergy.com	Purchase Order No.: 10LEC-0000018165	Address: SAME AS A
Phone: 785-575-8113	Project Name: LEC Inactive Ash Ponds CCR	Pace Quote Reference: Pace Project Manager: Jasmine Amerin, 913-563-1403
Requested Due Date/TAT: 7 day	Project Number: 129778-038	Pace Profile #: 9655, 2

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location
STATE: KS

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 WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Analysis Test ↓	Requested Analysis Filtered (Y/N)					Residual Chlorine (Y/N)	
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₄	Methanol		Other	200.8 Total Metals**	200.7 Total Metals*	300: Cl, F, SO4	2540C TDS		4500 H+B
					DATE	TIME	DATE	TIME																	
1	MW-37-031020		WT		03/10	1525			3	X	X							X	X	X	X	X			
2	MW-38-031020 MW-38-031020				03/10	1700			1	X	X							X	X	X	X				
3	MW-K-031120				03/11	810			1	X	X							X	X	X	X				
4	MW-L-031120				03/11	930			1	X	X							X	X	X	X				
5	MW-39-031120				03/11	1045			1	X	X							X	X	X	X				
6	MW-39-031120 Dup-031120				03/11	1055			1	X	X							X	X	X	X				
7	MW-40-031120				03/11	1240			1	X	X							X	X	X	X				
8																									
9																									
10																									
11																									
12																									

60331435

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS					
200.7 Total Metals*: B, Ca, Ba, Li	Eli Fredrickson H&A	03/11	1415	EBrockert H&A	3/11/20	14:20	2.6	3.11				
200.8 Total Metals**: As, Mo							7.6	4	N	Y		
							13.8					

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: Eli Fredrickson	SIGNATURE of SAMPLER: <i>Eli Fredrickson</i>				
DATE Signed (MM/DD/YY): 03/11/20					

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

April 02, 2020

Melissa Michels
Evergy, Inc.
818 Kansas Avenue
Topeka, KS 66612

RE: Project: LEC Inactive Ash Ponds CCR
Pace Project No.: 60331669

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Greensburg

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

Sincerely,



Jasmine Amerin
jasmine.amerin@pacelabs.com
(913)599-5665
Project Manager

Enclosures

cc: Andrew Hare, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Tabitha Hylton, KCP&L & Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
Danielle Zinmaster, Haley & Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60331669001	MW-37-031020	Water	03/10/20 15:25	03/12/20 09:10
60331669002	MW-38-031020	Water	03/10/20 17:00	03/12/20 09:10
60331669003	MW-K-031120	Water	03/11/20 08:10	03/12/20 09:10
60331669004	MW-L-031120	Water	03/11/20 09:30	03/12/20 09:10
60331669005	MW-39-031120	Water	03/11/20 10:45	03/12/20 09:10
60331669006	DUP-031120	Water	03/11/20 10:55	03/12/20 09:10
60331669007	MW-40-031120	Water	03/11/20 12:40	03/12/20 09:10

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SAMPLE ANALYTE COUNT

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60331669001	MW-37-031020	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669002	MW-38-031020	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669003	MW-K-031120	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669004	MW-L-031120	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669005	MW-39-031120	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669006	DUP-031120	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331669007	MW-40-031120	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-37-031020 **Lab ID: 60331669001** Collected: 03/10/20 15:25 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.153 ± 0.265 (0.667) C:NA T:92%	pCi/L	04/02/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.291 ± 0.339 (0.710) C:79% T:81%	pCi/L	04/01/20 11:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.291 ± 0.430 (0.710)	pCi/L	04/02/20 14:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-38-031020 **Lab ID: 60331669002** Collected: 03/10/20 17:00 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.107 ± 0.297 (0.577) C:NA T:93%	pCi/L	04/02/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.138 ± 0.324 (0.721) C:78% T:84%	pCi/L	04/01/20 11:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.245 ± 0.440 (0.721)	pCi/L	04/02/20 14:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-K-031120 **Lab ID: 60331669003** Collected: 03/11/20 08:10 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.0529 ± 0.311 (0.635) C:NA T:94%	pCi/L	04/02/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	1.16 ± 0.434 (0.642) C:83% T:90%	pCi/L	04/01/20 11:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.21 ± 0.534 (0.642)	pCi/L	04/02/20 14:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-L-031120 **Lab ID: 60331669004** Collected: 03/11/20 09:30 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0604 ± 0.275 (0.560) C:NA T:84%	pCi/L	04/02/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.939 ± 0.418 (0.679) C:77% T:86%	pCi/L	04/01/20 11:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.939 ± 0.500 (0.679)	pCi/L	04/02/20 14:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-39-031120 **Lab ID: 60331669005** Collected: 03/11/20 10:45 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.429 (0.860) C:NA T:89%	pCi/L	04/02/20 11:35	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.484 ± 0.340 (0.648) C:79% T:87%	pCi/L	04/01/20 11:28	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.484 ± 0.547 (0.860)	pCi/L	04/02/20 14:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: DUP-031120 **Lab ID: 60331669006** Collected: 03/11/20 10:55 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.313 (0.677) C:NA T:87%	pCi/L	04/02/20 11:35	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.116 ± 0.315 (0.706) C:78% T:83%	pCi/L	04/01/20 11:28	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.116 ± 0.444 (0.706)	pCi/L	04/02/20 14:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Sample: MW-40-031120 **Lab ID: 60331669007** Collected: 03/11/20 12:40 Received: 03/12/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.348 ± 0.403 (0.651) C:NA T:96%	pCi/L	04/02/20 11:35	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.205 ± 0.276 (0.590) C:83% T:90%	pCi/L	04/01/20 11:29	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.553 ± 0.488 (0.651)	pCi/L	04/02/20 14:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

QC Batch: 388333

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60331669001, 60331669002, 60331669003, 60331669004, 60331669005, 60331669006, 60331669007

METHOD BLANK: 1881033

Matrix: Water

Associated Lab Samples: 60331669001, 60331669002, 60331669003, 60331669004, 60331669005, 60331669006, 60331669007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.470 ± 0.349 (0.684) C:82% T:90%	pCi/L	04/01/20 11:27	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

QC Batch: 388332

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 60331669001, 60331669002, 60331669003, 60331669004, 60331669005, 60331669006, 60331669007

METHOD BLANK: 1881032

Matrix: Water

Associated Lab Samples: 60331669001, 60331669002, 60331669003, 60331669004, 60331669005, 60331669006, 60331669007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.225 ± 0.234 (0.595) C:NA T:90%	pCi/L	04/02/20 11:22	

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

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QUALIFIERS

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC Inactive Ash Ponds CCR

Pace Project No.: 60331669

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331669001	MW-37-031020	EPA 903.1	388332		
60331669002	MW-38-031020	EPA 903.1	388332		
60331669003	MW-K-031120	EPA 903.1	388332		
60331669004	MW-L-031120	EPA 903.1	388332		
60331669005	MW-39-031120	EPA 903.1	388332		
60331669006	DUP-031120	EPA 903.1	388332		
60331669007	MW-40-031120	EPA 903.1	388332		
60331669001	MW-37-031020	EPA 904.0	388333		
60331669002	MW-38-031020	EPA 904.0	388333		
60331669003	MW-K-031120	EPA 904.0	388333		
60331669004	MW-L-031120	EPA 904.0	388333		
60331669005	MW-39-031120	EPA 904.0	388333		
60331669006	DUP-031120	EPA 904.0	388333		
60331669007	MW-40-031120	EPA 904.0	388333		
60331669001	MW-37-031020	Total Radium Calculation	390899		
60331669002	MW-38-031020	Total Radium Calculation	390899		
60331669003	MW-K-031120	Total Radium Calculation	390899		
60331669004	MW-L-031120	Total Radium Calculation	390899		
60331669005	MW-39-031120	Total Radium Calculation	390899		
60331669006	DUP-031120	Total Radium Calculation	390899		
60331669007	MW-40-031120	Total Radium Calculation	390899		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: _____ of _____
Company: EVERGY KANSAS CENTRAL, INC.		Report To: Melissa Michels		Attention: Accounts Payable		REGULATORY AGENCY
Address: Lawrence Energy Center (LEC) 818 Kansas Ave, Topeka, KS 66612		Copy To: Jared Morrison, Jake Humphrey, Laura Hines Andrew Hare, Tabitha Hylton, Samantha Kaney		Company Name: EVERGY KANSAS CENTRAL, INC		
Email To: melissa.michels@evergy.com		Purchase Order No.: 10LEC-0000018165		Address: SAME AS A		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Phone: 785-575-8113 Fax: _____		Project Name: LEC Inactive Ash Ponds CCR		Pace Quote Reference: _____		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____
Requested Due Date/TAT: 15 day		Project Number: 129778-038		Pace Project Manager: Jasmine Amerin, 913-563-1403		Site Location STATE: KS
				Pace Profile #: 9655, 1		

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 WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other	Radium-226	Radium-228			Total Radium			
					DATE	TIME	DATE	TIME																			
1	MW-37-031020		WT		03/10	1525			2		X						X	X	X								
2	MW-38-031020		W		03/10	1700					X						X	X	X								
3	MW-K-031120				03/11	810					X						X	X	X								
4	MW-L-031120				03/11	930					X						X	X	X								
5	MW-39-031120				03/11	1045					X						X	X	X								
6	Dup-031120				03/11	1055					X						X	X	X								
7	MW-40-031120		W		03/11	1240					X						X	X	X								
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	E. Fredrickson	3/11/20	1700	Melissa Michels	3/11/20	09:10	N 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: Eli Fredrickson					
SIGNATURE of SAMPLER: <i>Eli Fredrickson</i>					
DATE Signed (MM/DD/YY): 03/11/20					

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: ENERGY-PACKS Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1515 8760 5045

Label _____
LIMS Login _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used _____ Type of Ice: Wet Blue None

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

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and initials of person examining contents
	Yes	No	N/A	
Chain of Custody Present:	/			1. 10D2191 NJ 3/12/2020
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>W</u>	/			5.
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used: -Pace Containers Used:	/			10.
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	/			16. DNK2
All containers meet method preservation requirements.	/			Initial when completed: <u>NJ</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):		/		17.
Trip Blank Present:		/		18.
Trip Blank Custody Seals Present		/		
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>NJ</u> Date: <u>3/12/2020</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Waiting for an Truck

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Quality Control Sample Performance Assessment

Test: Ra-226
Analyst: MK1
Date: 3/18/2020
Batch ID: 52931
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1881032
MB concentration:	-0.225
M/B Counting Uncertainty:	0.233
MB MDC:	0.595
MB Numerical Performance Indicator:	-1.90
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCSD52931	LCSD52931
Count Date:	4/2/2020	
Spike I.D.:	18-039	
Spike Concentration (pCi/mL):	31.432	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.667	
Target Conc. (pCi/L, g, F):	4.713	
Uncertainty (Calculated):	0.222	
Result (pCi/L, g, F):	3.864	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.765	
Numerical Performance Indicator:	-2.09	
Percent Recovery:	81.97%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	73%	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	3/10/2020	
Sample I.D.:	30354610001	
Sample MS I.D.:	30354610001MS	
Sample MSD I.D.:		
Spike I.D.:	18-039	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	31.432	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.639	
MS Target Conc. (pCi/L, g, F):	9.838	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.462	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.197	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.256	
Sample Matrix Spike Result:	9.814	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.216	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	-0.327	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	97.75%	
MSD Percent Recovery:		
MS Status vs Numerical Indicator:	N/A	
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:	Pass	
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:	136%	
MS/MSD Lower % Recovery Limits:	71%	

Duplicate Sample Assessment		Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	30354609001	
Duplicate Sample I.D.:	30354609001DUP	
Sample Result (pCi/L, g, F):	0.397	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.390	
Sample Duplicate Result (pCi/L, g, F):	0.054	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.282	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	1.398	
Duplicate RPD:	151.81%	
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	32%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	
% RPD Limit:	

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the RL.

Comments:

***Batch must be re-prepped due to unacceptable precision.

Handwritten notes:
 OK 4-2-20
 MK1
 4/2/20
 4/2/2020



Quality Control Sample Performance Assessment

Test: Ra-228
Analyst: VAL
Date: 3/23/2020
Worklist: 52932
Matrix: WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment		
MB Sample ID	1881033	
MB concentration:	0.470	
M/B 2 Sigma CSU:	0.349	
MB MDC:	0.684	
MB Numerical Performance Indicator:	2.64	
MB Status vs Numerical Indicator:	Warning	
MB Status vs. MDC:	Pass	

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCS52932	LCSD52932
Count Date:	4/1/2020	4/1/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	34.642	34.642
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.804	0.805
Target Conc. (pCi/L, g, F):	4.306	4.304
Uncertainty (Calculated):	0.310	0.310
Result (pCi/L, g, F):	3.600	3.296
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.833	0.797
Numerical Performance Indicator:	-1.56	-2.31
Percent Recovery:	83.59%	75.58%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	3/10/2020	
Sample I.D.:	30354610003	
Sample MS I.D.:	30354610003MS	
Sample MSD I.D.:		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	34.895	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.809	
MS Target Conc. (pCi/L, g, F):	8.623	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.621	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.695	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.351	
Sample Matrix Spike Result:	8.032	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	1.628	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	-1.418	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	85.09%	
MSD Percent Recovery:		
MS Status vs Numerical Indicator:	Pass	
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:	Pass	
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:	135%	
MS/MSD Lower % Recovery Limits:	60%	

Duplicate Sample Assessment		
Sample I.D.:	LCS52932	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.:	LCSD52932	
Sample Result (pCi/L, g, F):	3.600	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.833	
Sample Duplicate Result (pCi/L, g, F):	3.296	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.797	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	0.517	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	8.76%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Sample Matrix Spike Result:		
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
Duplicate Numerical Performance Indicator:		
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:		
MS/MSD Duplicate Status vs Numerical Indicator:		
MS/MSD Duplicate Status vs RPD:		
% RPD Limit:		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Handwritten initials and date: JJ 4/2-20

Handwritten signature: Cu 4/2/20

ATTACHMENT 2
Statistical Analysis

ATTACHMENT 2-1
March 2019 Statistical Analysis



HALEY & ALDRICH, INC.
6500 Rockside Road
Suite 200
Cleveland, OH 44131
216.739.0555

TECHNICAL MEMORANDUM

November 2, 2022
File No. 129778-049

TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

FROM: Haley & Aldrich, Inc.
Steven F. Putrich, P.E., Principal Consultant – Engineering Principal
Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist

SUBJECT: March 2019 Background Groundwater Monitoring Data
Statistical Evaluation
Completed on July 15, 2019
Lawrence Energy Center
Area 2 Pond, Area 3 Pond, and Area 4 Pond (inactive)

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.90 (Rule), this memorandum summarizes the statistical evaluation of analytical results for the background monitoring groundwater sampling events for the Lawrence Energy Center (LEC) Area 2 Pond (inactive), Area 3 Pond (inactive), and Area 4 Pond (inactive; collectively, inactive Ash Ponds). These background monitoring groundwater sampling events were completed from **March 2018 through March 2019**, with laboratory results received and accepted on **April 16, 2019**.

The statistical evaluation discussed in this memorandum was conducted to determine if Appendix III groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant increase (SSI) above background or upgradient wells consistent with the requirements in 40 CFR § 257.94.

Statistical Evaluation of Appendix III Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at the coal combustion residuals (CCR) unit (40 CFR § 257.93(f) (1-4)). One statistical method used for these evaluations, the prediction limits (PL) method, was certified by Haley & Aldrich, Inc. on April 17, 2019. The PL method, as determined applicable for this sampling event, was used to evaluate potential SSIs above background. Background levels for each constituent listed in Appendix III (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids) were computed as upper prediction limits (UPL), considering one future observation, and a minimum 95 percent confidence coefficient. The most recent groundwater sampling event from each compliance well was compared to the corresponding background PL to determine if a SSI existed.

STATISTICAL ANALYSIS

An interwell evaluation using the PL method was used to complete the statistical evaluation of the referenced dataset. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data (MW-37). A PL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a specified confidence level (e.g., 95 percent). The upper endpoint of a concentration limit is called the UPL. Depending on the background data distribution, parametric or non-parametric PL procedures are used to evaluate groundwater monitoring data using this method. Parametric PLs utilize normally distributed data or normalized data via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the PL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UPL.

The statistical evaluation was conducted using the background dataset for all Appendix III constituents. The UPLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and U.S. Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample location (MW-37) were combined to calculate the UPL for each Appendix III constituent. The variability and distribution of the pooled data set was evaluated to determine the method for UPL calculation. Per the document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, March 2009, background concentrations were updated based on statistical evaluation of analytical results collected through **March 2019**.

RESULTS OF APPENDIX III DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the Appendix III constituents from the **March 2019** semi-annual detection monitoring sampling event were compared to their respective background UPLs (Table I). A sample concentration greater than the background UPL is considered to represent a SSI. The results of the groundwater detection monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation on groundwater sampling data collected in March 2019, SSIs above the background PL are presented in Table I.**

Tables:

Table I – Summary of Background Groundwater Monitoring Statistical Evaluation

TABLES

TABLE I
SUMMARY OF BACKGROUND GROUNDWATER MONITORING STATISTICAL EVALUATION
BACKGROUND SAMPLING EVENTS (MARCH 2018 - MARCH 2019)
LAWRENCE ENERGY CENTER
INACTIVE ASH PONDS

Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	Outlier Presence	Outlier Removed	Trend	Distribution Well	March 2019 Concentration (mg/L)	Interwell Comparison	
													Background Limits ¹ (UPL) mg/L	SSI
CCR Appendix-III: Boron, Total (mg/L)														
MW-37 (upgradient)	8/8	0%	-	2.2	0.01268	0.1126	0.0533	No	No	Stable			2.8	
MW-38	8/8	0%	-	6.2	0.18	0.4243	0.07576	No	No	Decreasing	Normal	5.2		Y
MW-39	8/8	0%	-	5.5	0.2171	0.466	0.09137	No	No	Stable	Normal	4.6		Y
MW-40	8/8	0%	-	7.4	3.073	1.753	0.2822	Yes	No	Decreasing	Non-parametric	5.8		N
MW-K	8/8	0%	-	3.6	0.2507	0.5007	0.1837	No	No	Decreasing	Normal	2.4		N
MW-L	8/8	0%	-	2.6	0.1079	0.3284	0.1622	No	No	Stable	Normal	2.1		N
CCR Appendix-III: Calcium, Total (mg/L)														
MW-37 (upgradient)	8/8	0%	-	143	8.857	2.976	0.02157	No	No	Stable			155	
MW-38	8/8	0%	-	322	66.57	8.159	0.02615	No	No	Stable	Normal	302		Y
MW-39	8/8	0%	-	511	160.3	12.66	0.02573	No	No	Stable	Normal	490		Y
MW-40	8/8	0%	-	536	257.1	16.04	0.03111	No	No	Stable	Normal	468		Y
MW-K	8/8	0%	-	554	855.4	29.25	0.05654	No	No	Stable	Normal	538		Y
MW-L	8/8	0%	-	668	3857	62.1	0.1061	No	No	Stable	Normal	612		Y
CCR Appendix-III: Chloride, Total (mg/L)														
MW-37 (upgradient)	8/8	0%	-	33.5	3.423	1.85	0.06208	No	No	Stable			40	
MW-38	8/8	0%	-	254	496.8	22.29	0.1005	No	No	Stable	Normal	199		Y
MW-39	8/8	0%	-	535	3880	62.29	0.1478	No	No	Stable	Normal	399		Y
MW-40	8/8	0%	-	429	2077	45.57	0.1247	No	No	Stable	Normal	329		Y
MW-K	8/8	0%	-	825	11850	108.8	0.1741	No	No	Stable	Normal	825		Y
MW-L	8/8	0%	-	946	24340	156	0.2055	No	No	Stable	Normal	946		Y
CCR Appendix-III: Fluoride, Total (mg/L)														
MW-37 (upgradient)	8/8	0%	-	0.44	0.002457	0.04957	0.1358	No	No	Stable			0.6	
MW-38	8/8	0%	-	5.5	0.08125	0.285	0.05687	No	No	Stable	Normal	4.7		Y
MW-39	8/8	0%	-	3.5	0.2364	0.4862	0.1662	Yes	No	Stable	Normal	1.9		Y
MW-40	8/8	0%	-	2.1	0.08839	0.2973	0.1711	Yes	No	Stable	Normal	1.2		Y
MW-K	8/8	0%	-	3.5	0.8776	0.9368	0.3307	No	No	Stable	Non-parametric	2.2		Y
MW-L	8/8	0%	-	2.2	0.1441	0.3796	0.2011	Yes	No	Stable	Non-parametric	1.0		Y
CCR Appendix-III: pH (lab), Total (SU)														
MW-37 (upgradient)	8/8	0%	-	7.7	0.03071	0.1753	0.02393	Yes	No	Stable			8.5	
MW-38	8/8	0%	-	7.7	0.005536	0.0744	0.009838	No	No	Stable	Normal	7.5		N
MW-39	8/8	0%	-	7.5	0.01554	0.1246	0.0171	No	No	Stable	Normal	7.3		N
MW-40	8/8	0%	-	7.2	0.005	0.07071	0.01007	No	No	Stable	Non-parametric	7.2		N
MW-K	8/8	0%	-	7.7	0.03429	0.1852	0.02536	Yes	No	Stable	Normal	7.3		N
MW-L	8/8	0%	-	7.3	0.02554	0.1598	0.02263	No	No	Stable	Normal	7.2		N
CCR Appendix-III: Sulfate, Total (mg/L)														
MW-37 (upgradient)	8/8	0%	-	371	1282	35.8	0.1144	No	No	Stable			518	
MW-38	8/8	0%	-	1560	14130	118.9	0.08747	No	No	Stable	Normal	1350		Y
MW-39	8/8	0%	-	2110	14630	120.9	0.06446	No	No	Stable	Normal	1810		Y
MW-40	8/8	0%	-	2160	26650	163.2	0.08884	No	No	Stable	Normal	1730		Y
MW-K	8/8	0%	-	2160	38420	196	0.103	No	No	Stable	Normal	2160		Y
MW-L	8/8	0%	-	2410	50010	223.6	0.1046	No	No	Stable	Normal	2180		Y
CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)														
MW-37 (upgradient)	8/8	0%	-	3120	704100	839.1	0.8039	Yes	No	Stable			3120	
MW-38	8/8	0%	-	2600	531900	729.3	0.3628	No	No	Stable	Normal	2140		N
MW-39	8/8	0%	-	3770	40860	202.1	0.05802	No	No	Stable	Normal	3480		Y
MW-40	8/8	0%	-	3310	8713	93.34	0.02932	No	No	Stable	Normal	3060		N
MW-K	8/8	0%	-	4370	101000	317.8	0.08208	No	No	Increasing	Normal	4370		Y
MW-L	8/8	0%	-	4900	292900	541.2	0.1304	No	No	Stable	Normal	4710		Y

Notes & Abbreviations:
¹ Based on background data collected from 03/07/2018 through 03/18/2018
CCR = coal combustion residua.
mg/L = milligrams per Liter
SSI = statistically significant increase
SU = standard unit
UPL = upper prediction limit

ATTACHMENT 2-1
September 2019 Statistical Analysis



HALEY & ALDRICH, INC.
6500 Rockside Road
Suite 200
Cleveland, OH 44131
216.739.0555

TECHNICAL MEMORANDUM

November 2, 2022
File No. 0204993-000

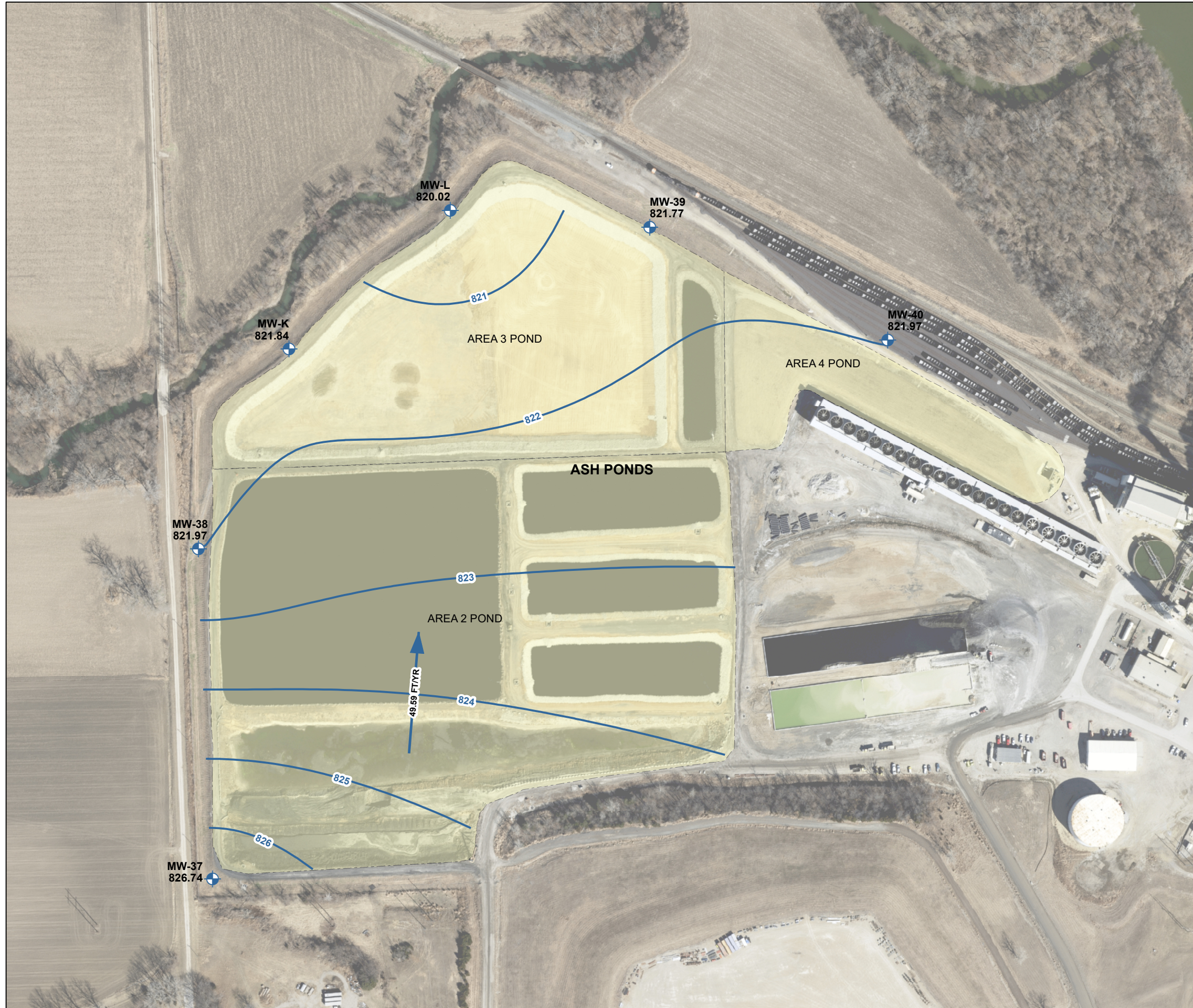
TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

FROM: Haley & Aldrich, Inc.
Steven F. Putrich, P.E., Principal Consultant – Engineering Principal
Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist

SUBJECT: September 2019 Semi-Annual Groundwater Detection Monitoring Data
Statistical Analyses Summary
Lawrence Energy Center
Area 2 Pond, Area 3 Pond, and Area 4 Pond (inactive)

Pursuant to Code of Federal Regulations Title 40 §257.93 and §257.94 (Rule), this memorandum summarizes the statistical summary of the analytical results for the first semi-annual detection monitoring groundwater sampling event for the Lawrence Energy Center Area 2 Pond (inactive), Area 3 Pond (inactive), and Area 4 Pond (inactive), which took place in September 2019. This semi-annual detection monitoring groundwater sampling event was completed on September 4 and 5, 2019, with laboratory results received and accepted on October 21, 2019. Due to the determination of statistically significant increases in the March 2019 statistical analyses, the unit transitioned to an assessment monitoring program; therefore, no statistical analyses were completed on this September 2019 detection monitoring sampling event data.

ATTACHMENT 3
Groundwater Potentiometric Maps



LEGEND

- MW-37** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2019
- 822.24**
- MONITORING WELL
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 1-FT INTERVAL
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- ASH PONDS (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 04 - 05 SEPTEMBER 2019.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 04 - 05 SEPTEMBER 2019 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM PUBLISHED SOURCES AND GROUNDWATER ELEVATION DATA MEASURED BETWEEN MARCH 2018 AND JANUARY 2019.
4. AERIAL IMAGERY SOURCE: ESRI, 17 APRIL 2018



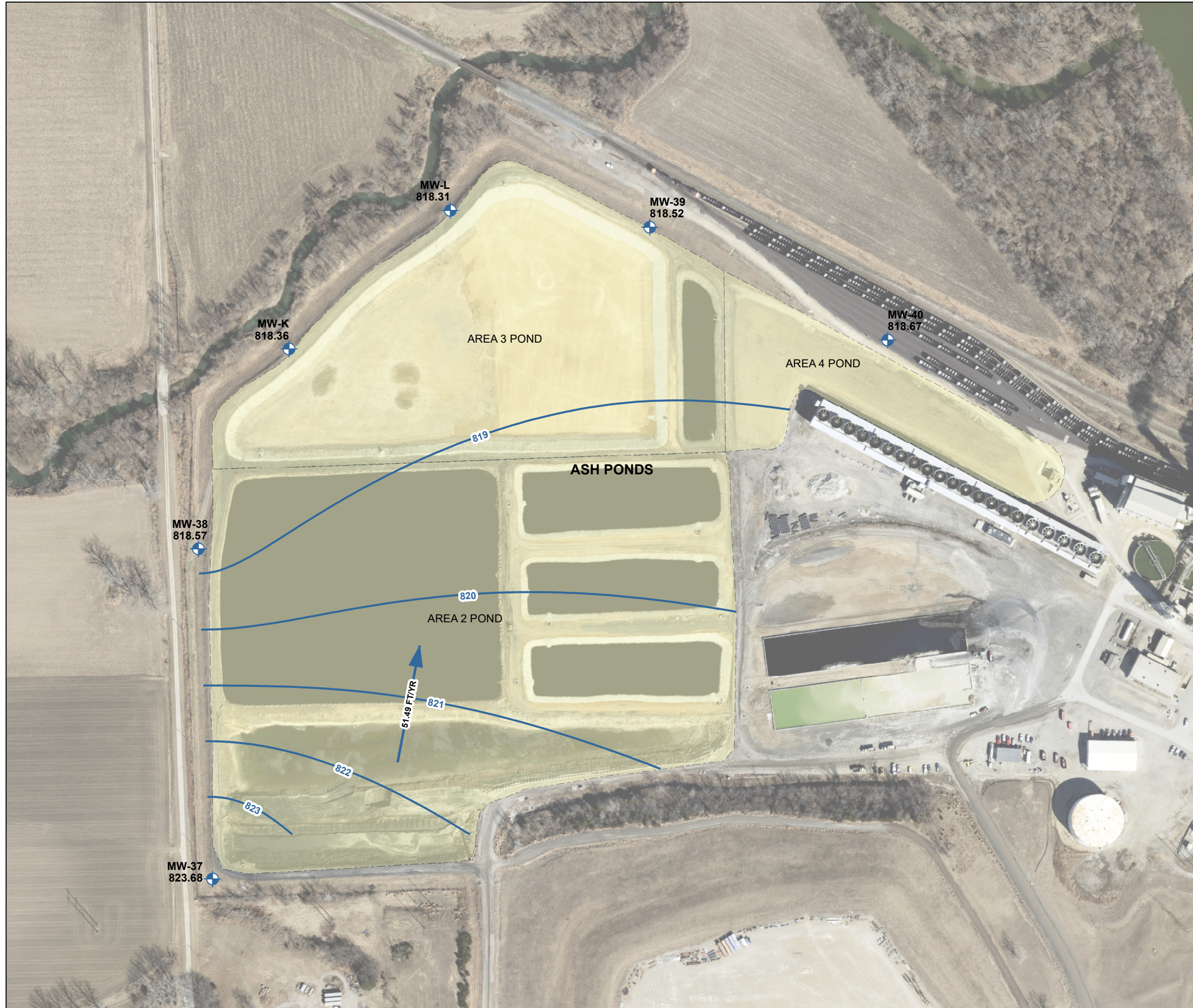
EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

ASH PONDS (INACTIVE)
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
SEPTEMBER 4 - 5, 2019







NOVEMBER 2022

FIGURE 2

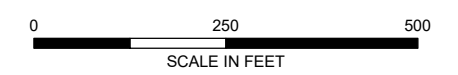


LEGEND

- MW-37 822.24** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), DECEMBER 2019
-  MONITORING WELL
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 1-FT INTERVAL
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  ASH PONDS (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 06 DECEMBER 2019.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 06 DECEMBER 2019 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM PUBLISHED SOURCES AND GROUNDWATER ELEVATION DATA MEASURED BETWEEN MARCH 2018 AND JANUARY 2019.
4. AERIAL IMAGERY SOURCE: ESRI, 17 APRIL 2018



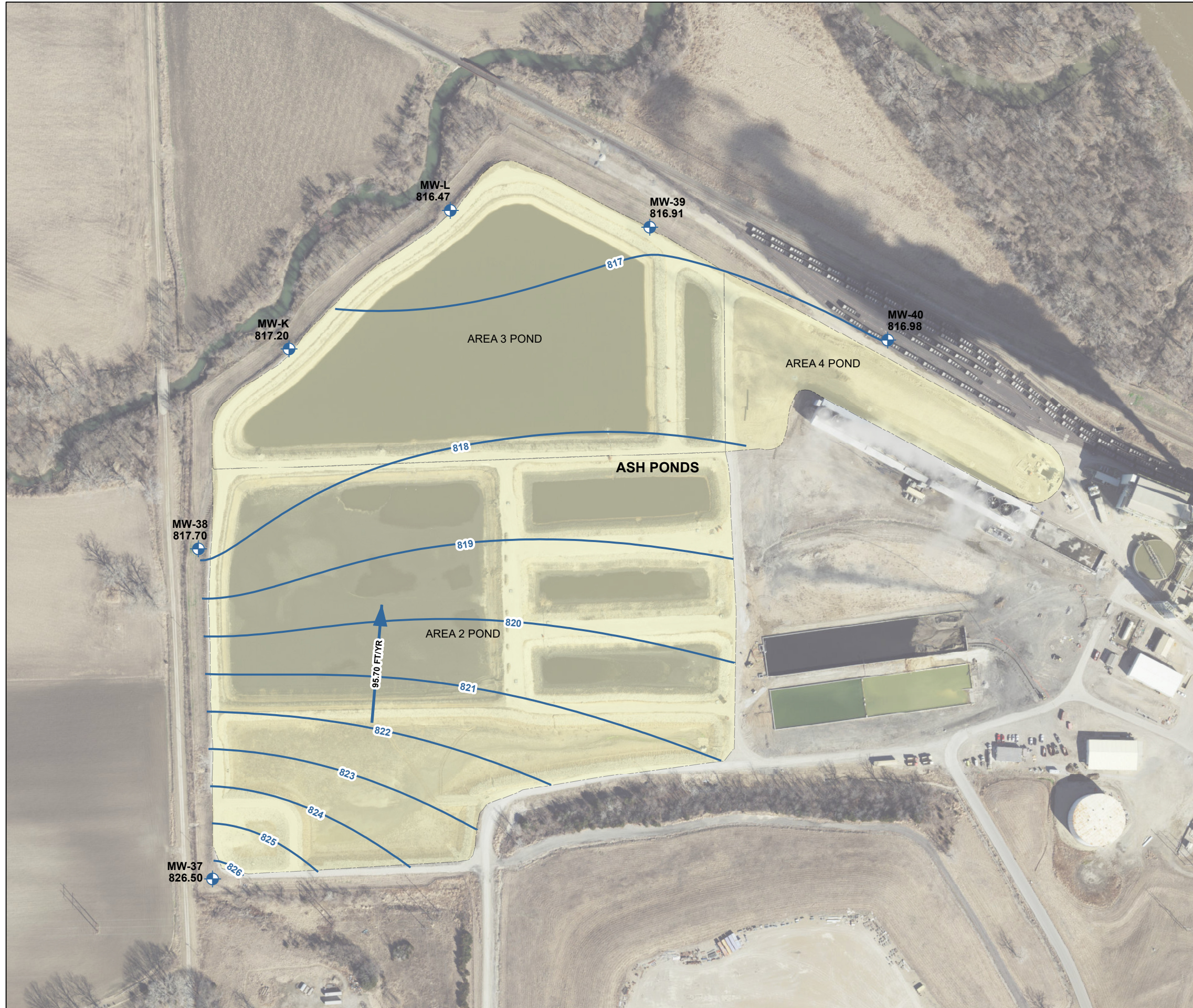
EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

ASH PONDS (INACTIVE)
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
DECEMBER 6, 2019



NOVEMBER 2022

FIGURE 3

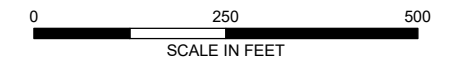


LEGEND

- MW-37** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), MARCH 2020
- 822.24**
- MONITORING WELL
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 1-FT INTERVAL
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- ASH PONDS (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 10 MARCH 2020.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 10 MARCH 2020 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM PUBLISHED SOURCES AND GROUNDWATER ELEVATION DATA MEASURED BETWEEN MARCH 2018 AND JANUARY 2019.
4. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

ASH PONDS (INACTIVE)
GROUNDWATER POTENTIOMETRIC
ELEVATION MAP
MARCH 10, 2020



NOVEMBER 2022

FIGURE 4