HALEY ALDRICH

www.haleyaldrich.com

2019 – 2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

BOTTOM ASH POND
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Evergy Kansas Central, Inc.
Topeka, Kansas

File No. 129778-035
July 2020

Table of Contents

Page

Revision No.	Date	Notes

List of Tables

List of Figures

This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring program for the Jeffrey Energy Center (JEC) inactive Bottom Ash Pond (BAP) 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 United States Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report for the JEC BAP (inactive) is, to the best of my knowledge, accurate and complete.

Signed: _____
Professional Geologist

Print Name:	Mark Nicholls
Kansas License No.:	Professional Geologist No. 881
Title:	Technical Expert 2
Company:	Haley & Aldrich, Inc.

1. Introduction

This 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the inactive Bottom Ash Pond (BAP) at the Jeffrey Energy Center (JEC), 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 BAP 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 BAP.

This Annual Report documents the groundwater monitoring system and results for the BAP consistent with applicable sections of §§ 257.90 through 257.98, 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 257.99, except as provided in paragraph (g) of this section.

Evergy has installed and certified a groundwater monitoring system at the JEC BAP. The BAP is 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 JEC BAP (inactive) 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 BAP was 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 BAP has remained in the assessment monitoring program through June 2020.

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 BAP from July 2019 through June 2020.

2.2.4 Actions to Resolve Problems

No problems were encountered at the BAP 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 JEC BAP 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 BAP 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).

Two rounds of assessment monitoring sampling were 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 BAP 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.
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)
ST. MARYS, KANSAS

Location	Upgradient			Downgradient									
	IBA-4			IBA-1			IBA-2					IBA-3		
Measure Point (TOC)	1201.86			1171.65			1171.66					1164.95		
Sample Name	IBA-4	IBA-04_120419	IBA-04-030420	IBA-1	IBA-01_120319	IBA-01-030320	IBA-2	IBA-02_120419	DUP_120419	IBA-02-030420	DUP-030420	IBA-3	IBA-03_120419	IBA-03-030420
Sample Date	9/10/2019	12/4/2019	3/4/2020	9/10/2019	12/3/2019	3/3/2020	9/10/2019	12/4/2019	12/4/2019	3/4/2020	3/4/2020	9/10/2019	12/4/2019	3/4/2020
Final Lab Report Date	9/20/2019	12/16/2019	3/16/2020	9/20/2019	12/16/2019	3/16/2020	9/20/2019	12/16/2019	12/16/2019	3/16/2020	3/16/2020	9/20/2019	12/16/2019	3/16/2020
Final 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
Final Radiation Lab Report Date	N/A	1/2/2020	N/A	N/A	1/2/2020	N/A	N/A	1/2/2020	1/2/2020	N/A	N/A	N/A	1/2/2020	N/A
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
Lab Data Reviewed and Accepted	10/22/2019	1/9/2020	4/20/2020	10/22/2019	1/9/2020	4/20/2020	10/22/2019	1/9/2020	1/9/2020	4/20/2020	4/20/2020	10/22/2019	1/9/2020	4/20/2020
Depth to Water (ft btoc)	52.41	53.34	53.61	24.61	26.12	25.38	26.09	27.72	--	27.16	--	30.28	31.63	31.22
Temperature (Deg C)	17.67	15.17	9.91	17.49	14.78	11.18	19.33	12.45	--	8.46	--	18.88	13.59	8.42
Conductivity (µS/cm)	888	952	941	2000	2197	2171	1615	1749	--	1767	--	1845	2035	2041
Turbidity (NTU)	2.16	1.62	1.07	3.78	2.10	1.25	0.26	0.86	--	0.77	--	0.27	0.98	0.62
Boron, Total (mg/L)	**0.21**	--	**0.21**	**0.339**	--	**0.34**	**0.18**	--	--	**0.18**	**0.18**	**0.25**	--	**0.26**
Calcium, Total (mg/L)	**102**	--	**104**	**295**	--	**308**	**214**	--	--	**221**	**218**	**249**	--	**261**
Chloride (mg/L)	**18.4**	--	**18.1**	**119**	--	**125**	**122**	--	--	**109**	**106**	**128**	--	**116**
Fluoride (mg/L)	**0.55**	**0.48**	**0.48**	<0.20	<0.20	**0.21**	<0.20	<0.20	<0.20	**0.24**	**0.25**	<0.20	<0.20	**0.23**
Sulfate (mg/L)	**167**	--	**167**	**881**	--	**815**	**530**	--	--	**547**	**544**	**758**	--	**716**
pH (su)	**7.4**	--	**7.3**	**7.4**	--	**7.2**	**7.4**	--	--	**7.3**	**7.1**	**7.4**	--	**7.2**
TDS (mg/L)	**659**	--	**685**	**1710**	--	**1740**	**1350**	--	--	**1310**	**1360**	**1690**	--	**1630**
Antimony, Total (mg/L)	--	<0.0010	--	--	<0.0010	--	--	<0.0010	<0.0010	--	--	--	<0.0010	--
Arsenic (mg/L)	--	<0.0010	--	--	<0.0010	--	--	<0.0010	<0.0010	--	--	--	<0.0010	--
Barium, Total (mg/L)	--	**0.020**	**0.017**	--	**0.031**	**0.028**	--	**0.029**	**0.028**	**0.027**	**0.026**	--	**0.019**	**0.017**
Beryllium, Total (mg/L)	--	<0.0010	--	--	<0.0010	--	--	<0.0010	<0.0010	--	--	--	<0.0010	--
Cadmium, Total (mg/L)	--	<0.00050	--	--	<0.00050	--	--	<0.00050	<0.00050	--	--	--	<0.00050	--
Chromium, Total (mg/L)	--	<0.0050	--	--	<0.0050	--	--	<0.0050	<0.0050	--	--	--	<0.0050	--
Cobalt, Total (mg/L)	--	<0.0010	<0.0010	--	**0.0021**	**0.0021**	--	**0.0011**	**0.0011**	**0.0011**	**0.0011**	--	**0.0018**	**0.0019**
Lead, Total (mg/L)	--	<0.010	--	--	<0.010	--	--	<0.010	<0.010	--	--	--	<0.010	-
Lithium, Total (mg/L)	--	**0.035**	**0.031**	--	**0.015**	**0.014**	--	**0.017**	**0.026**	**0.018**	**0.019**	--	**0.022**	**0.020**
Molybdenum, Total (mg/L)	--	**0.0018**	**0.0019**	--	**0.0072**	**0.0076**	--	**0.0021**	**0.0020**	**0.0022**	**0.0022**	--	**0.0021**	**0.0022**
Selenium, Total (mg/L)	--	<0.0010	--	--	<0.0010	--	--	<0.0010	<0.0010	--	--	--	<0.0010	--
Thallium, Total (mg/L)	--	<0.0010	--	--	<0.0010	--	--	<0.0010	<0.0010	--	--	--	<0.0010	--
Mercury, Total (mg/L)	--	<0.00020	--	--	<0.00020	--	--	<0.00020	<0.00020	--	--	--	<0.00020	--
Fluoride (mg/L)	--	**0.48**	**0.48**	--	<0.20	**0.21**	--	<0.20	<0.20	**0.24**	**0.25**	--	<0.20	**0.23**
Radium-226 & 228 Combined (pCi/L)	--	0.784 +/- 0.669 (1.11)	--	--	0.972 +/- 0.755 (1.23)	--	--	0.921 +/- 0.625 (0.967)	0.000 +/- 0.684 (1.19)	--	--	--	0.189 +/- 0.777 (1.56)	--

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
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)

Well ID	Statistical Analysis Completed	Constituent
IBA-1	July 2019	Boron
IBA-1	July 2019	Calcium
IBA-2	July 2019	
IBA-3	July 2019	
IBA-1	July 2019	Chloride
IBA-2	July 2019	
IBA-3	July 2019	
IBA-1	July 2019	Sulfate
IBA-2	July 2019	
IBA-3	July 2019	
IBA-1	July 2019	Total Dissolved Solids
IBA-2	July 2019	
IBA-3	July 2019	

Notes & Abbreviations:

SSIs = statistically significant increases

TABLE III
ANNUAL ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
DECEMBER 2019 SAMPLING EVENT
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)

Well #	Background Value (UTL)*	GWPS (Higher of MCL / 40 CFR § 257.95(h)(2) or Upper Tolerance Limit)
CCR Appendix-IV Barium, Total (mg/L)		
IBA-4 (upgradient)	0.0229	
IBA-1		2
IBA-2		2
IBA-3		2
CCR Appendix-IV Cobalt, Total (mg/L)		
IBA-4 (upgradient)	0.001	
IBA-1		0.006
IBA-2		0.006
IBA-3		0.006
CCR Appendix-IV Fluoride, Total (mg/L)		
IBA-4 (upgradient)	0.653	
IBA-1		4.0
IBA-2		4.0
IBA-3		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
IBA-4 (upgradient)	0.0382	
IBA-1		0.040
IBA-2		0.040
IBA-3		0.040
CCR Appendix-IV Molybdenum, Total (mg/L)		
IBA-4 (upgradient)	0.0024	
IBA-1		0.100
IBA-2		0.100
IBA-3		0.100

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

BOTTOM ASH POND

MONITORING WELL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. AERIAL IMAGERY SOURCE: ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE, MAY 7, 2018.

N

0 400 800

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC. JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

BOTTOM ASH POND (INACTIVE) MONITORING WELL LOCATION MAP

FIGURE 1

JULY 2020

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

November 10, 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

Mark Nicholls
Digitally signed by Mark Nicholls
Date: 2022.11.10 09:37:10 -07'00'

SUBJECT: 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report Addendum
Evergy Kansas Central, Inc.
Bottom Ash Pond (Inactive)
Jeffrey Energy Center – St. Marys, Kansas

The Evergy Kansas Central, Inc. (Evergy) Bottom Ash Pond (BAP; inactive) at the Jeffrey Energy Center (JEC) 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 through June 2020 for the BAP 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 baseline sampling events completed in September and December 2019, and March 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

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

September 20, 2019

JD Schlegel
KCP&L and Westar, Evergy Companies
818 Kansas Avenue
Topeka, KS 66612

RE: Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Dear JD Schlegel:
Enclosed are the analytical results for sample(s) received by the laboratory on September 11, 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
Jake Humphrey, KCP&L and Westar, Evergy Companies
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, KCP&L and Westar, Evergy Companies
Melissa Michels, Westar Energy
Danielle Zinmaster, Haley & Aldrich

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

CERTIFICATIONS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

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

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

SAMPLE SUMMARY

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60314530001	**IBA-1**	Water	09/10/19 13:30	09/11/19 10:12
60314530002	**IBA-2**	Water	09/10/19 15:33	09/11/19 10:12
60314530003	**IBA-3**	Water	09/10/19 18:15	09/11/19 10:12
60314530004	**IBA-4**	Water	09/10/19 11:37	09/11/19 10:12

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

SAMPLE ANALYTE COUNT

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60314530001	**IBA-1**	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	3	PASI-K
60314530002	**IBA-2**	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	3	PASI-K
60314530003	**IBA-3**	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	3	PASI-K
60314530004	**IBA-4**	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	3	PASI-K

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: September 20, 2019

General Information:
4 samples were analyzed for EPA 200.7. 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.

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: September 20, 2019

General Information:
4 samples were analyzed for SM 2540C. 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.

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

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: September 20, 2019

General Information:
4 samples were analyzed for SM 4500-H+B. 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.
- IBA-1 (Lab ID: 60314530001)
- IBA-2 (Lab ID: 60314530002)
- IBA-3 (Lab ID: 60314530003)
- IBA-4 (Lab ID: 60314530004)

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:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: September 20, 2019

General Information:
4 samples were analyzed for EPA 300.0. 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.

QC Batch: 609287

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313369022,60314530001

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

- MSD (Lab ID: 2488904)
  - Chloride

Additional Comments:

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

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Sample: IBA-1 **Lab ID: 60314530001** Collected: 09/10/19 13:30 Received: 09/11/19 10:12 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	**339**	ug/L	100	1	09/14/19 10:00	09/16/19 11:10	7440-42-8	
Calcium, Total Recoverable	**295000**	ug/L	200	1	09/14/19 10:00	09/16/19 11:10	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1710**	mg/L	20.0	1		09/14/19 10:07		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		09/16/19 16:28		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**119**	mg/L	20.0	20		09/13/19 16:32	16887-00-6	M1
Fluoride	**<0.20**	mg/L	0.20	1		09/13/19 15:48	16984-48-8	
Sulfate	**881**	mg/L	100	100		09/13/19 17:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Sample: IBA-2 **Lab ID: 60314530002** Collected: 09/10/19 15:33 Received: 09/11/19 10:12 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	**178**	ug/L	100	1	09/14/19 10:00	09/16/19 11:12	7440-42-8	
Calcium, Total Recoverable	**214000**	ug/L	200	1	09/14/19 10:00	09/16/19 11:12	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1350**	mg/L	13.3	1		09/16/19 08:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		09/16/19 16:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**122**	mg/L	20.0	20		09/13/19 18:45	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/13/19 18:31	16984-48-8	
Sulfate	**530**	mg/L	100	100		09/13/19 19:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Sample: IBA-3 **Lab ID: 60314530003** Collected: 09/10/19 18:15 Received: 09/11/19 10:12 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	**247**	ug/L	100	1	09/14/19 10:00	09/16/19 11:15	7440-42-8	
Calcium, Total Recoverable	**249000**	ug/L	200	1	09/14/19 10:00	09/16/19 11:15	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	13.3	1		09/16/19 08:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		09/16/19 16:31		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**128**	mg/L	20.0	20		09/13/19 19:30	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/13/19 19:15	16984-48-8	
Sulfate	**758**	mg/L	100	100		09/13/19 19:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Sample: IBA-4 **Lab ID: 60314530004** Collected: 09/10/19 11:37 Received: 09/11/19 10:12 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	**213**	ug/L	100	1	09/14/19 10:00	09/16/19 11:17	7440-42-8	
Calcium, Total Recoverable	**102000**	ug/L	200	1	09/14/19 10:00	09/16/19 11:17	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**659**	mg/L	10.0	1		09/16/19 08:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		09/16/19 16:33		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**18.4**	mg/L	1.0	1		09/13/19 20:29	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	1		09/13/19 20:29	16984-48-8	
Sulfate	**167**	mg/L	20.0	20		09/13/19 20:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

QC Batch: 609430 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60314530001, 60314530002, 60314530003, 60314530004

METHOD BLANK: 2489610 Matrix: Water
Associated Lab Samples: 60314530001, 60314530002, 60314530003, 60314530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	<100	100	09/16/19 11:04	
Calcium	ug/L	<200	200	09/16/19 11:04	

LABORATORY CONTROL SAMPLE: 2489611

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	946	95	85-115	
Calcium	ug/L	10000	10300	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2489612 2489613

Parameter	Units	60314639001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	125	1000	1000	1060	1080	94	95	70-130	1	20	
Calcium	ug/L	22300	10000	10000	32400	32500	101	102	70-130	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

QC Batch: 609423 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60314530001

METHOD BLANK: 2489426 Matrix: Water
Associated Lab Samples: 60314530001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/14/19 10:03	

LABORATORY CONTROL SAMPLE: 2489427

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

SAMPLE DUPLICATE: 2489428

Parameter	Units	60314723001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2910	2940	1	10	

SAMPLE DUPLICATE: 2489429

Parameter	Units	60314418013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	620	631	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

QC Batch: 609469 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60314530002, 60314530003, 60314530004

METHOD BLANK: 2490160 Matrix: Water
Associated Lab Samples: 60314530002, 60314530003, 60314530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/16/19 08:39	

LABORATORY CONTROL SAMPLE: 2490161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 2490162

Parameter	Units	60314530002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1350	1290	5	10	

SAMPLE DUPLICATE: 2490163

Parameter	Units	60314573006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	925	944	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

QC Batch: 609622 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60314530001, 60314530002, 60314530003, 60314530004

SAMPLE DUPLICATE: 2490561

Parameter	Units	60313369017 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	7.3	5	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

QC Batch: 609287 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60314530001, 60314530002, 60314530003, 60314530004

METHOD BLANK: 2488901 Matrix: Water
Associated Lab Samples: 60314530001, 60314530002, 60314530003, 60314530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/13/19 10:45	
Fluoride	mg/L	<0.20	0.20	09/13/19 10:45	
Sulfate	mg/L	<1.0	1.0	09/13/19 10:45	

LABORATORY CONTROL SAMPLE: 2488902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2488903 2488904

Parameter	Units	60314530001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	119	100	100	226	255	108	137	80-120	12	15	M1
Fluoride	mg/L	<0.20	2.5	2.5	2.2	2.2	88	89	80-120	1	15	
Sulfate	mg/L	881	500	500	1380	1370	100	97	80-120	1	15	

MATRIX SPIKE SAMPLE: 2488905

Parameter	Units	60313369022 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.4	5	7.1	96	80-120	
Fluoride	mg/L	0.44	2.5	3.1	108	80-120	
Sulfate	mg/L	9.2	5	14.4	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

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

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC INACTIVE BOTTOM ASH POND C
Pace Project No.: 60314530

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60314530001	**IBA-1**	EPA 200.7	609430	EPA 200.7	609441
60314530002	**IBA-2**	EPA 200.7	609430	EPA 200.7	609441
60314530003	**IBA-3**	EPA 200.7	609430	EPA 200.7	609441
60314530004	**IBA-4**	EPA 200.7	609430	EPA 200.7	609441
60314530001	**IBA-1**	SM 2540C	609423		
60314530002	**IBA-2**	SM 2540C	609469		
60314530003	**IBA-3**	SM 2540C	609469		
60314530004	**IBA-4**	SM 2540C	609469		
60314530001	**IBA-1**	SM 4500-H+B	609622		
60314530002	**IBA-2**	SM 4500-H+B	609622		
60314530003	**IBA-3**	SM 4500-H+B	609622		
60314530004	**IBA-4**	SM 4500-H+B	609622		
60314530001	**IBA-1**	EPA 300.0	609287		
60314530002	**IBA-2**	EPA 300.0	609287		
60314530003	**IBA-3**	EPA 300.0	609287		
60314530004	**IBA-4**	EPA 300.0	609287		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60314530

60314530

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 ☑ 12PIC

Thermometer Used: T301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.2 **Corr. Factor** +0.0 **Corrected** 3.2

Date and initials of person examining contents: 9/11/19

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:

Company:	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:	Brandon Griffin
Copy To:	Jared Morrison
Purchase Order No.:	10JEC-0000040819
Project Name:	JEC Inactive Bottom Ash Pond CCR
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson 913-563-1407
Pace Profile #:	9657, 4

REGULATORY AGENCY

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

Site Location STATE: KS

Requested Analysis Filtered (Y/N)

Section D Required Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	300: Cl, F, SO4	2540C TDS	4500 H+B	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IBA-1	WT	G			9/10/19	1330		3	2		1						X	X	X	X		001
2	IBA-2	WT	G			9/10/19	1533		3	2		1						X	X	X	X		002
3	IBA-3	WT	G			9/10/19	1815		3	2		1						X	X	X	X		003
4	IBA-4	WT	G			9/10/19	1137		3	2		1						X	X	X	X		004
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Pace Project No./ Lab I.D. (handwritten): 60314530

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
200.7 Total Metals*: B, Ca	[signature]	9/11/19	1012	[signature]	9.11.19	10.12	3.2	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: John Knightly

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/10/19

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

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

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

ATTACHMENT 1-2
December 2019 Sampling Event
Laboratory Analytical Report

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

December 16, 2019

JD Schlegel
KCP&L and Westar, Evergy Companies
818 Kansas Avenue
Topeka, KS 66612

RE: Project: JEC CCR
Pace Project No.: 60323430

Dear JD Schlegel:
Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 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
Sarah Hazelwood, KCP&L and Westar, Evergy Companies
Laura Hines, KCP&L & Westar, Evergy Companies
Jake Humphrey, KCP&L and Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, KCP&L and Westar, Evergy Companies
Melissa Michels, KCP&L & Westar, Evergy Companies
Brandon Will, KCP&L and Westar, Evergy Companies
Danielle Zinmaster, Haley & Aldrich

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: JEC CCR
Pace Project No.: 60323430

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

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

SAMPLE SUMMARY

Project: JEC CCR
Pace Project No.: 60323430

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60323430001	**IBA-01_120319**	Water	12/03/19 17:00	12/05/19 14:55
60323430002	**IBA-02_120419**	Water	12/04/19 08:20	12/05/19 14:55
60323430003	**DUP_120419**	Water	12/04/19 08:25	12/05/19 14:55
60323430004	**IBA-03_120419**	Water	12/04/19 10:15	12/05/19 14:55
60323430005	**IBA-04_120419**	Water	12/04/19 13:40	12/05/19 14:55

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

SAMPLE ANALYTE COUNT

Project: JEC CCR
Pace Project No.: 60323430

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60323430001	**IBA-01_120319**	EPA 200.7	TDS	5	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323430002	**IBA-02_120419**	EPA 200.7	TDS	5	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323430003	**DUP_120419**	EPA 200.7	TDS	5	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323430004	**IBA-03_120419**	EPA 200.7	TDS	5	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K
60323430005	**IBA-04_120419**	EPA 200.7	TDS	5	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JLH	1	PASI-K
		EPA 300.0	MJK	1	PASI-K

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323430

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: December 16, 2019

General Information:
5 samples were analyzed for EPA 200.7. 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.

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323430

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Evergy Kansas Central, Inc.
Date: December 16, 2019

General Information:
5 samples were analyzed for EPA 200.8. 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:

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323430

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: Evergy Kansas Central, Inc.
Date: December 16, 2019

General Information:
5 samples were analyzed for EPA 245.1. 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 245.1 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.

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323430

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: December 16, 2019

General Information:
5 samples were analyzed for EPA 300.0. 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.

QC Batch: 627140

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60323318001,60323341002

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

- MS (Lab ID: 2556372)
  - Fluoride

Additional Comments:

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

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

ANALYTICAL RESULTS

Project: JEC CCR
Pace Project No.: 60323430

Sample: IBA-01_120319 **Lab ID: 60323430001** Collected: 12/03/19 17:00 Received: 12/05/19 14:55 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	12/09/19 14:50	12/10/19 16:25	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/09/19 14:50	12/10/19 16:25	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:25	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:25	7439-92-1	
Lithium	**0.015**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:25	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	12/10/19 09:10	12/10/19 15:01	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:01	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/10/19 09:10	12/10/19 15:01	7440-43-9	
Cobalt, Total Recoverable	**0.0021**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:01	7440-48-4	
Molybdenum, Total Recoverable	**0.0072**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:01	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:01	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:01	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	12/10/19 12:33	12/10/19 16:03	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**<0.20**	mg/L	0.20	1		12/10/19 23:38	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC CCR
Pace Project No.: 60323430

Sample: IBA-02_120419 **Lab ID: 60323430002** Collected: 12/04/19 08:20 Received: 12/05/19 14:55 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	**0.029**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:28	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/09/19 14:50	12/10/19 16:28	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:28	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:28	7439-92-1	
Lithium	**0.017**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:28	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	12/10/19 09:10	12/10/19 15:03	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:03	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/10/19 09:10	12/10/19 15:03	7440-43-9	
Cobalt, Total Recoverable	**0.0011**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:03	7440-48-4	
Molybdenum, Total Recoverable	**0.0021**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:03	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:03	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:03	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	12/10/19 12:33	12/10/19 16:05	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**<0.20**	mg/L	0.20	1		12/10/19 23:54	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC CCR
Pace Project No.: 60323430

Sample: DUP_120419 **Lab ID: 60323430003** Collected: 12/04/19 08:25 Received: 12/05/19 14:55 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	**0.028**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:30	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/09/19 14:50	12/10/19 16:30	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:30	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:30	7439-92-1	
Lithium	**0.026**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:30	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	12/10/19 09:10	12/10/19 15:05	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:05	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/10/19 09:10	12/10/19 15:05	7440-43-9	
Cobalt, Total Recoverable	**0.0011**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:05	7440-48-4	
Molybdenum, Total Recoverable	**0.0020**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:05	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:05	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:05	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	12/10/19 12:33	12/10/19 16:07	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**<0.20**	mg/L	0.20	1		12/11/19 00:10	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC CCR
Pace Project No.: 60323430

Sample: IBA-03_120419 **Lab ID: 60323430004** Collected: 12/04/19 10:15 Received: 12/05/19 14:55 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	**0.019**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:32	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/09/19 14:50	12/10/19 16:32	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:32	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:32	7439-92-1	
Lithium	**0.022**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:32	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	12/10/19 09:10	12/10/19 15:08	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:08	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/10/19 09:10	12/10/19 15:08	7440-43-9	
Cobalt, Total Recoverable	**0.0018**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:08	7440-48-4	
Molybdenum, Total Recoverable	**0.0021**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:08	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:08	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:08	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	12/10/19 12:33	12/10/19 16:14	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**<0.20**	mg/L	0.20	1		12/11/19 00:26	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC CCR
Pace Project No.: 60323430

Sample: IBA-04_120419 **Lab ID: 60323430005** Collected: 12/04/19 13:40 Received: 12/05/19 14:55 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	**0.020**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:38	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/09/19 14:50	12/10/19 16:38	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/09/19 14:50	12/10/19 16:38	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:38	7439-92-1	
Lithium	**0.035**	mg/L	0.010	1	12/09/19 14:50	12/10/19 16:38	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	12/10/19 09:10	12/10/19 15:10	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:10	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/10/19 09:10	12/10/19 15:10	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:10	7440-48-4	
Molybdenum, Total Recoverable	**0.0018**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:10	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:10	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/10/19 09:10	12/10/19 15:10	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	12/10/19 12:33	12/10/19 16:16	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**0.48**	mg/L	0.20	1		12/11/19 00:42	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC CCR
Pace Project No.: 60323430

QC Batch: 627161 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

METHOD BLANK: 2556496 Matrix: Water
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	12/10/19 15:47	

LABORATORY CONTROL SAMPLE: 2556497

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2556498 2556499

Parameter	Units	60323318001 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	4.2	4.2	84	84	70-130	0	20	

MATRIX SPIKE SAMPLE: 2556500

Parameter	Units	60323136003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	5	4.8	95	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC CCR
Pace Project No.: 60323430

QC Batch: 627066 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

METHOD BLANK: 2555985 Matrix: Water
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	12/10/19 15:23	
Beryllium	mg/L	<0.0010	0.0010	12/10/19 15:23	
Chromium	mg/L	<0.0050	0.0050	12/10/19 15:23	
Lead	mg/L	<0.010	0.010	12/10/19 15:23	
Lithium	mg/L	<0.010	0.010	12/10/19 15:23	

LABORATORY CONTROL SAMPLE: 2555986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.95	95	85-115	
Beryllium	mg/L	1	0.94	94	85-115	
Chromium	mg/L	1	0.97	97	85-115	
Lead	mg/L	1	1.0	100	85-115	
Lithium	mg/L	1	0.96	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2555987 2555988

Parameter	Units	60323499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	89.2 ug/L	1	1	1.1	1.0	97	95	70-130	1	20	
Beryllium	mg/L	ND	1	1	0.97	0.96	97	96	70-130	2	20	
Chromium	mg/L	ND	1	1	0.97	0.97	97	97	70-130	1	20	
Lead	mg/L	ND	1	1	0.96	0.94	96	94	70-130	2	20	
Lithium	mg/L	86.9 ug/L	1	1	1.0	1.0	96	95	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC CCR
Pace Project No.: 60323430

QC Batch: 627185 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

METHOD BLANK: 2556528 Matrix: Water
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	12/10/19 14:43	
Arsenic	mg/L	<0.0010	0.0010	12/10/19 14:43	
Cadmium	mg/L	<0.00050	0.00050	12/10/19 14:43	
Cobalt	mg/L	<0.0010	0.0010	12/10/19 14:43	
Molybdenum	mg/L	<0.0010	0.0010	12/10/19 14:43	
Selenium	mg/L	<0.0010	0.0010	12/10/19 14:43	
Thallium	mg/L	<0.0010	0.0010	12/10/19 14:43	

LABORATORY CONTROL SAMPLE: 2556529

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.04	0.040	99	85-115	
Arsenic	mg/L	0.04	0.039	98	85-115	
Cadmium	mg/L	0.04	0.040	99	85-115	
Cobalt	mg/L	0.04	0.040	101	85-115	
Molybdenum	mg/L	0.04	0.038	95	85-115	
Selenium	mg/L	0.04	0.041	103	85-115	
Thallium	mg/L	0.04	0.038	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2556530 2556531

Parameter	Units	60323623001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.15J ug/L	0.04	0.04	0.038	0.038	94	95	70-130	1	20	
Arsenic	mg/L	0.31J ug/L	0.04	0.04	0.038	0.039	95	96	70-130	1	20	
Cadmium	mg/L	ND	0.04	0.04	0.033	0.034	83	84	70-130	1	20	
Cobalt	mg/L	ND	0.04	0.04	0.040	0.040	100	101	70-130	0	20	
Molybdenum	mg/L	2.5 ug/L	0.04	0.04	0.042	0.042	98	98	70-130	0	20	
Selenium	mg/L	7.2 ug/L	0.04	0.04	0.043	0.044	89	92	70-130	3	20	
Thallium	mg/L	ND	0.04	0.04	0.034	0.035	86	87	70-130	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC CCR
Pace Project No.: 60323430

QC Batch: 627140 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

METHOD BLANK: 2556370 Matrix: Water
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	12/10/19 16:01	

METHOD BLANK: 2557853 Matrix: Water
Associated Lab Samples: 60323430001, 60323430002, 60323430003, 60323430004, 60323430005

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

LABORATORY CONTROL SAMPLE: 2556371

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

LABORATORY CONTROL SAMPLE: 2557854

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2556372 2556373

Parameter	Units	60323318001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.42	2.5	2.5	2.4	2.4	78	80	80-120	3	15	M1

MATRIX SPIKE SAMPLE: 2556374

Parameter	Units	60323341002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	<17.0	500	524	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC CCR
Pace Project No.: 60323430

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR
Pace Project No.: 60323430

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323430001	**IBA-01_120319**	EPA 200.7	627066	EPA 200.7	627100
60323430002	**IBA-02_120419**	EPA 200.7	627066	EPA 200.7	627100
60323430003	**DUP_120419**	EPA 200.7	627066	EPA 200.7	627100
60323430004	**IBA-03_120419**	EPA 200.7	627066	EPA 200.7	627100
60323430005	**IBA-04_120419**	EPA 200.7	627066	EPA 200.7	627100
60323430001	**IBA-01_120319**	EPA 200.8	627185	EPA 200.8	627303
60323430002	**IBA-02_120419**	EPA 200.8	627185	EPA 200.8	627303
60323430003	**DUP_120419**	EPA 200.8	627185	EPA 200.8	627303
60323430004	**IBA-03_120419**	EPA 200.8	627185	EPA 200.8	627303
60323430005	**IBA-04_120419**	EPA 200.8	627185	EPA 200.8	627303
60323430001	**IBA-01_120319**	EPA 245.1	627161	EPA 245.1	627314
60323430002	**IBA-02_120419**	EPA 245.1	627161	EPA 245.1	627314
60323430003	**DUP_120419**	EPA 245.1	627161	EPA 245.1	627314
60323430004	**IBA-03_120419**	EPA 245.1	627161	EPA 245.1	627314
60323430005	**IBA-04_120419**	EPA 245.1	627161	EPA 245.1	627314
60323430001	**IBA-01_120319**	EPA 300.0	627140		
60323430002	**IBA-02_120419**	EPA 300.0	627140		
60323430003	**DUP_120419**	EPA 300.0	627140		
60323430004	**IBA-03_120419**	EPA 300.0	627140		
60323430005	**IBA-04_120419**	EPA 300.0	627140		

Pace Analytical® www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60323430

60323430

Client Name: Western 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 ☒ Ziplc

Thermometer Used: T296 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 0.6 Corr. Factor +0.0 Corrected 0.6

Date and initials of person examining contents: 12.6.18 KG

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☐Yes ☒No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A — Required Client Information:

Company:	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: ~~Brandon Griffin~~	A.Kneeling Akneeling@haley-aldrich.com
Copy To:	Jared Morrison
Purchase Order No.:	10JEC-0000040819
Project Name:	
Project Number:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson 913-563-1407
Pace Profile #:	9657, 1

REGULATORY AGENCY

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

Site Location STATE: KS

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Preservatives: NaOH	Preservatives: $Na_2S_2O_3$	Preservatives: Methanol	Preservatives: Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Hg	300: Cl, F, SO4	2540C TDS	4500 H+B							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	~~IBA-01~~ IBA-01_120319	WT		~~12/3/19~~	~~1700~~	12/3	1700		~~3~~ 3	X		X							X	X				App. IV						40323430 001
2	IBA-02_120419	WT				12/4	820		~~3~~ 3	X		X							X	X										002
3	DUP_120419	WT				12/4	825		~~3~~ 3	X		X							X	X				ON	X					003
4	IBA-03_120419	WT				12/4	1015		3	X		X							X	X										004
5	IBA-04_120419	WT				12/4	1340		3	X		X							X	X										005
6																														
7																														
8																														
9																														
10																														
11																														
12																														

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	E.L. Fredricksen	12/5	820		12-5	8:20				
200.8 Total Metals**: Sb, As, Cd, Co, Mo, Se, Tl				E Brackett/Pace	12/5/19	14:55	0.6	Y	N	Y

SAMPLER NAME AND SIGNATURE	E.L. Fredricksen	Elizabeth	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	E.L. Fredricksen					
SIGNATURE of SAMPLER:	Elizabeth	DATE Signed (MM/DD/YY): 12/5/19				

*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.

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

January 02, 2020

JD Schlegel
KCP&L and Westar, Evergy Companies
818 Kansas Avenue
Topeka, KS 66612

RE: Project: JEC CCR
Pace Project No.: 60323754

Dear JD Schlegel:
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
Sarah Hazelwood, KCP&L and Westar, Evergy Companies
Laura Hines, KCP&L & Westar, Evergy Companies
Jake Humphrey, KCP&L and Westar, Evergy Companies
Samantha Kaney, Haley & Aldrich
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, KCP&L and Westar, Evergy Companies
Melissa Michels, KCP&L & Westar, Evergy Companies
Brandon Will, KCP&L and Westar, Evergy Companies
Danielle Zinmaster, Haley & Aldrich

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: JEC CCR
Pace Project No.: 60323754

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

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

SAMPLE SUMMARY

Project: JEC CCR
Pace Project No.: 60323754

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60323754001	**IBA-01_120319**	Water	12/03/19 17:00	12/09/19 09:30
60323754002	**IBA-02_120419**	Water	12/04/19 08:20	12/09/19 09:30
60323754003	**DUP_120419**	Water	12/04/19 08:25	12/09/19 09:30
60323754004	**IBA-03_120419**	Water	12/04/19 10:15	12/09/19 09:30
60323754005	**IBA-04_120419**	Water	12/04/19 13:40	12/09/19 09:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: JEC CCR
Pace Project No.: 60323754

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60323754001	**IBA-01_120319**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323754002	**IBA-02_120419**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323754003	**DUP_120419**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323754004	**IBA-03_120419**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60323754005	**IBA-04_120419**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323754

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Evergy Kansas Central, Inc.
Date: January 02, 2020

General Information:
5 samples were analyzed for EPA 903.1. 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:

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323754

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Evergy Kansas Central, Inc.
Date: January 02, 2020

General Information:
5 samples were analyzed for EPA 904.0. 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:

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

PROJECT NARRATIVE

Project: JEC CCR
Pace Project No.: 60323754

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Evergy Kansas Central, Inc.
Date: January 02, 2020

General Information:
5 samples were analyzed for Total Radium Calculation. 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.

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

Sample: IBA-01_120319 **Lab ID: 60323754001** Collected: 12/03/19 17:00 Received: 12/09/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.324 ± 0.459 (0.777) C:NA T:76%**	pCi/L	12/27/19 12:22	13982-63-3	
Radium-228	EPA 904.0	**0.648 ± 0.599 (1.23) C:76% T:80%**	pCi/L	12/26/19 15:20	15262-20-1	
Total Radium	Total Radium Calculation	**0.972 ± 0.755 (1.23)**	pCi/L	01/02/20 10:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

Sample: IBA-02_120419 **Lab ID: 60323754002** Collected: 12/04/19 08:20 Received: 12/09/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.170 ± 0.369 (0.681) C:NA T:83%**	pCi/L	12/27/19 12:42	13982-63-3	
Radium-228	EPA 904.0	**0.751 ± 0.504 (0.967) C:73% T:91%**	pCi/L	12/26/19 15:20	15262-20-1	
Total Radium	Total Radium Calculation	**0.921 ± 0.625 (0.967)**	pCi/L	01/02/20 10:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

Sample: DUP_120419 **Lab ID: 60323754003** Collected: 12/04/19 08:25 Received: 12/09/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.100 ± 0.311 (0.707) C:NA T:99%**	pCi/L	12/27/19 12:42	13982-63-3	
Radium-228	EPA 904.0	**-1.82 ± 0.609 (1.49) C:76% T:87%**	pCi/L	12/26/19 15:20	15262-20-1	
Total Radium	Total Radium Calculation	**0.000 ± 0.684 (1.49)**	pCi/L	01/02/20 10:23	7440-14-4	

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

Sample: IBA-03_120419 **Lab ID: 60323754004** Collected: 12/04/19 10:15 Received: 12/09/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.189 ± 0.447 (0.827) C:NA T:83%**	pCi/L	12/27/19 12:42	13982-63-3	
Radium-228	EPA 904.0	**-0.923 ± 0.635 (1.56) C:74% T:82%**	pCi/L	12/26/19 15:23	15262-20-1	
Total Radium	Total Radium Calculation	**0.189 ± 0.777 (1.56)**	pCi/L	01/02/20 10:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

Sample: IBA-04_120419 **Lab ID: 60323754005** Collected: 12/04/19 13:40 Received: 12/09/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.784 ± 0.499 (0.603) C:NA T:86%**	pCi/L	12/27/19 12:42	13982-63-3	
Radium-228	EPA 904.0	**-0.784 ± 0.446 (1.11) C:73% T:76%**	pCi/L	12/26/19 12:21	15262-20-1	
Total Radium	Total Radium Calculation	**0.784 ± 0.669 (1.11)**	pCi/L	01/02/20 10:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

QC Batch: 375686 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60323754001, 60323754002, 60323754003, 60323754004, 60323754005

METHOD BLANK: 1822423 Matrix: Water
Associated Lab Samples: 60323754001, 60323754002, 60323754003, 60323754004, 60323754005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.02 ± 0.425 (0.682) C:78% T:88%	pCi/L	12/26/19 12:18	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR
Pace Project No.: 60323754

QC Batch: 375687 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60323754001, 60323754002, 60323754003, 60323754004, 60323754005

METHOD BLANK: 1822424 Matrix: Water
Associated Lab Samples: 60323754001, 60323754002, 60323754003, 60323754004, 60323754005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0476 ± 0.217 (0.442) C:NA T:77%	pCi/L	12/27/19 12:22	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC CCR
Pace Project No.: 60323754

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR
Pace Project No.: 60323754

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323754001	**IBA-01_120319**	EPA 903.1	375687		
60323754002	**IBA-02_120419**	EPA 903.1	375687		
60323754003	**DUP_120419**	EPA 903.1	375687		
60323754004	**IBA-03_120419**	EPA 903.1	375687		
60323754005	**IBA-04_120419**	EPA 903.1	375687		
60323754001	**IBA-01_120319**	EPA 904.0	375686		
60323754002	**IBA-02_120419**	EPA 904.0	375686		
60323754003	**DUP_120419**	EPA 904.0	375686		
60323754004	**IBA-03_120419**	EPA 904.0	375686		
60323754005	**IBA-04_120419**	EPA 904.0	375686		
60323754001	**IBA-01_120319**	Total Radium Calculation	377482		
60323754002	**IBA-02_120419**	Total Radium Calculation	377482		
60323754003	**DUP_120419**	Total Radium Calculation	377482		
60323754004	**IBA-03_120419**	Total Radium Calculation	377482		
60323754005	**IBA-04_120419**	Total Radium Calculation	377482		

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A — Required Client Information:

Company:	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:	15 Day

Section B — Required Project Information:

Report To: ~~Brandon Griffin~~	Adam Kneeling
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	10JEC-0000040819
Project Name:	
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9657, 2

REGULATORY AGENCY

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

Site Location STATE: KS

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Radium-226	Radium-228	Total Radium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IBA-01-120319	WT		12/3	1700				2			X						X	X	X		
2	IBA-02_120419	WT		12/4	820				2			X						X	X	X		
3	Dup-120419	WT		12/4	825				2			X						X	X	X		
4	IBA-03_120419	WT		12/4	1015				2			X						X	X	X		
5	IBA-04-120419	WT		12/4	1340				2			X						X	X	X		
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*200.7 Total Metals: Ba, Be, Cr, Pb, Li	Eli Fredrickson	12/6/19	19:00				
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eli Fredrickson

SIGNATURE of SAMPLER: Eli Fredrickson

DATE Signed (MM/DD/YY): 12/06/19

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

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Westar Project #

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Label

LIMS Login

Tracking #: 121929833964 DD 12/10/14

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no DB 12/10/14

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

pH paper Lot# 1000391 Date and Initials of person examining contents: 12/10/14 DB

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
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: WT	✓			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. pH<2
All containers meet method preservation requirements.	✓			Initial when completed DB 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: DD Date: 12/10/14

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

Pace Analytical
www.pacelabs.com

Test:	Ra-226
Analyst:	MK1
Date:	12/18/2019
Batch ID:	51480
Matrix:	DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1822424
MB concentration:	-0.048
M/B Counting Uncertainty:	0.161
MB MDC:	0.442
MB Numerical Performance Indicator:	-0.58
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS51480	LCSD51480
Count Date:	12/27/2019	
Spike I.D.:	19-022	
Spike Concentration (pCi/mL):	32.114	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.648	
Target Conc. (pCi/L, g, F):	4.958	
Uncertainty (Calculated):	0.233	
Result (pCi/L, g, F):	4.993	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.933	
Numerical Performance Indicator:	0.07	
Percent Recovery:	100.71%	
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.	70114572002	
Sample MS I.D.	70114572002MS	
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):	0.661	
MS Target Conc.(pCi/L, g, F):	9.717	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.457	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.364	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.334	
Sample Matrix Spike Result:	10.884	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.393	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	1.046	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	108.25%	
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.:	70114572001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	70114572001DUP	
Sample Result (pCi/L, g, F):	0.589	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.378	
Sample Duplicate Result (pCi/L, g, F):	0.552	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.375	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	0.136	70114572001
Duplicate RPD:	6.49%	70114572001DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Pass	
% 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:

CMZ 12/27/19

12-27-19 ue

Quality Control Sample Performance Assessment

Pace Analytical™ www.pacelabs.com

Test: Ra-228
Analyst: VAL
Date: 12/19/2019
Worklist: 51479
Matrix: WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1822423
MB concentration:	1.025
M/B 2 Sigma CSU:	0.425
MB MDC:	0.682
MB Numerical Performance Indicator:	4.73
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Fail

4/6/49 cdk 12/23/19

Laboratory Control Sample Assessment	LCSD (Y or N)?	n
	LCS51479	LCSD51479
Count Date:	12/26/2019	
Spike I.D.:	19-057	
Decay Corrected Spike Concentration (pCi/mL):	35.768	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.800	
Target Conc. (pCi/L, g, F):	4.469	
Uncertainty (Calculated):	0.322	
Result (pCi/L, g, F):	3.214	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.904	
Numerical Performance Indicator:	-2.56	
Percent Recovery:	71.93%	
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:	12/4/2019	
Sample I.D.	30339977003	
Sample MS I.D.	30339977003MS	
Sample MSD I.D.		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	36.029	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.811	
MS Target Conc.(pCi/L, g, F):	8.883	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.640	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.769	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.411	
Sample Matrix Spike Result:	8.605	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	1.811	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	-1.045	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	88.22%	
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.:	30339977002	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	30339977002DUP	
Sample Result (pCi/L, g, F):	0.375	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.312	
Sample Duplicate Result (pCi/L, g, F):	1.183	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.510	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-2.652	30339977002
Duplicate RPD:	103.80%	30339977002DUP
Duplicate Status vs Numerical Indicator:	Warning	
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:

*If the lowest activity sample in this batch is greater than ten times the blank value, the blank is acceptable; otherwise this batch must be re-prepped.

ATTACHMENT 1-3
March 2020 Sampling Event
Laboratory Analytical Report

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

March 16, 2020

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

RE: Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Dear Melissa Michels:
Enclosed are the analytical results for sample(s) received by the laboratory on March 06, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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
Sarah Hazelwood, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
JD Schlegel, Evergy, Inc.
Brandon Will, Evergy, Inc.
Danielle Zinmaster, Haley & Aldrich

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

CERTIFICATIONS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

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

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

SAMPLE SUMMARY

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60331040001	**IBA-01-030320**	Water	03/03/20 16:50	03/06/20 16:45
60331040002	**IBA-02-030420**	Water	03/04/20 08:00	03/06/20 16:45
60331040003	**DUP-030420**	Water	03/04/20 08:10	03/06/20 16:45
60331040004	**IBA-03-030420**	Water	03/04/20 09:45	03/06/20 16:45
60331040005	**IBA-04-030420**	Water	03/04/20 11:20	03/06/20 16:45

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

SAMPLE ANALYTE COUNT

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60331040001	**IBA-01-030320**	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	3	PASI-K
60331040002	**IBA-02-030420**	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	3	PASI-K
60331040003	**DUP-030420**	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	3	PASI-K
60331040004	**IBA-03-030420**	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	3	PASI-K
60331040005	**IBA-04-030420**	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	3	PASI-K

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: March 16, 2020

General Information:
5 samples were analyzed for EPA 200.7. 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.

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Evergy Kansas Central, Inc.
Date: March 16, 2020

General Information:
5 samples were analyzed for EPA 200.8. 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:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Evergy Kansas Central, Inc.
Date: March 16, 2020

General Information:
5 samples were analyzed for SM 2540C. 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.

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

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: Evergy Kansas Central, Inc.
Date: March 16, 2020

General Information:
5 samples were analyzed for SM 4500-H+B. 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-030420 (Lab ID: 60331040003)
- IBA-01-030320 (Lab ID: 60331040001)
- IBA-02-030420 (Lab ID: 60331040002)
- IBA-03-030420 (Lab ID: 60331040004)
- IBA-04-030420 (Lab ID: 60331040005)

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:

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

PROJECT NARRATIVE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: March 16, 2020

General Information:
5 samples were analyzed for EPA 300.0. 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.

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Sample: IBA-01-030320 **Lab ID: 60331040001** Collected: 03/03/20 16:50 Received: 03/06/20 16:45 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	**0.028**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:21	7440-39-3	
Boron, Total Recoverable	**0.34**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:21	7440-42-8	
Calcium, Total Recoverable	**308**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:21	7440-70-2	
Lithium	**0.014**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:21	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cobalt, Total Recoverable	**0.0021**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:03	7440-48-4	
Molybdenum, Total Recoverable	**0.0076**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:03	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1740**	mg/L	20.0	1		03/10/20 10:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		03/10/20 11:42		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**125**	mg/L	10.0	10		03/09/20 18:15	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	1		03/09/20 17:59	16984-48-8	
Sulfate	**815**	mg/L	50.0	50		03/09/20 18:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Sample: IBA-02-030420 **Lab ID: 60331040002** Collected: 03/04/20 08:00 Received: 03/06/20 16:45 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	**0.027**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:28	7440-39-3	
Boron, Total Recoverable	**0.18**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:28	7440-42-8	
Calcium, Total Recoverable	**221**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:28	7440-70-2	
Lithium	**0.018**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:28	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cobalt, Total Recoverable	**0.0011**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:06	7440-48-4	
Molybdenum, Total Recoverable	**0.0022**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:06	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1310**	mg/L	13.3	1		03/10/20 12:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		03/10/20 11:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**109**	mg/L	10.0	10		03/09/20 19:03	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	1		03/09/20 18:47	16984-48-8	
Sulfate	**547**	mg/L	50.0	50		03/09/20 19:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Sample: DUP-030420 **Lab ID: 60331040003** Collected: 03/04/20 08:10 Received: 03/06/20 16:45 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	**0.026**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:30	7440-39-3	
Boron, Total Recoverable	**0.18**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:30	7440-42-8	
Calcium, Total Recoverable	**218**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:30	7440-70-2	
Lithium	**0.019**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:30	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cobalt, Total Recoverable	**0.0011**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:13	7440-48-4	
Molybdenum, Total Recoverable	**0.0022**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:13	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1360**	mg/L	13.3	1		03/10/20 12:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		03/13/20 15:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**106**	mg/L	20.0	20		03/10/20 13:18	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	1		03/09/20 20:08	16984-48-8	
Sulfate	**544**	mg/L	50.0	50		03/09/20 20:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Sample: IBA-03-030420 **Lab ID: 60331040004** Collected: 03/04/20 09:45 Received: 03/06/20 16:45 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	**0.017**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:33	7440-39-3	
Boron, Total Recoverable	**0.26**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:33	7440-42-8	
Calcium, Total Recoverable	**261**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:33	7440-70-2	
Lithium	**0.020**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:33	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cobalt, Total Recoverable	**0.0019**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:16	7440-48-4	
Molybdenum, Total Recoverable	**0.0022**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:16	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1630**	mg/L	13.3	1		03/10/20 12:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		03/13/20 15:34		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**116**	mg/L	20.0	20		03/10/20 13:50	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	1		03/09/20 21:12	16984-48-8	
Sulfate	**716**	mg/L	50.0	50		03/09/20 21:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Sample: IBA-04-030420 **Lab ID: 60331040005** Collected: 03/04/20 11:20 Received: 03/06/20 16:45 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	**0.017**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:35	7440-39-3	
Boron, Total Recoverable	**0.21**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:35	7440-42-8	
Calcium, Total Recoverable	**104**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:35	7440-70-2	
Lithium	**0.031**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:35	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:19	7440-48-4	
Molybdenum, Total Recoverable	**0.0019**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:19	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**685**	mg/L	10.0	1		03/10/20 12:45		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		03/13/20 15:36		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**18.1**	mg/L	1.0	1		03/09/20 21:44	16887-00-6	
Fluoride	**0.48**	mg/L	0.20	1		03/09/20 21:44	16984-48-8	
Sulfate	**167**	mg/L	10.0	10		03/09/20 22:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 643043 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

METHOD BLANK: 2613103 Matrix: Water
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	03/12/20 15:04	
Boron	mg/L	<0.10	0.10	03/12/20 15:04	
Calcium	mg/L	<0.20	0.20	03/12/20 15:04	
Lithium	mg/L	<0.010	0.010	03/12/20 15:04	

LABORATORY CONTROL SAMPLE: 2613104

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	85-115	
Boron	mg/L	1	0.94	94	85-115	
Calcium	mg/L	10	10.6	106	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2613105 2613106

Parameter	Units	60331039005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.049	1	1	1.0	1.0	96	98	70-130	2	20	
Boron	mg/L	0.63	1	1	1.5	1.6	92	94	70-130	1	20	
Calcium	mg/L	182	10	10	190	194	75	116	70-130	2	20	
Lithium	mg/L	0.019	1	1	0.99	1.0	97	98	70-130	1	20	

MATRIX SPIKE SAMPLE: 2613107

Parameter	Units	60331041006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.061	1	1.0	98	70-130	
Boron	mg/L	0.21	1	1.2	96	70-130	
Calcium	mg/L	212	10	223	109	70-130	
Lithium	mg/L	0.012	1	1.0	100	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642549 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

METHOD BLANK: 2611550 Matrix: Water
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cobalt	mg/L	<0.0010	0.0010	03/11/20 11:35	
Molybdenum	mg/L	<0.0010	0.0010	03/11/20 11:35	

LABORATORY CONTROL SAMPLE: 2611551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	0.04	0.042	105	85-115	
Molybdenum	mg/L	0.04	0.040	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2611552 2611553

Parameter	Units	60331039001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	mg/L	0.0018	0.04	0.04	0.045	0.045	108	107	70-130	1	20	
Molybdenum	mg/L	0.38	0.04	0.04	0.41	0.42	90	97	70-130	1	20	

MATRIX SPIKE SAMPLE: 2611554

Parameter	Units	60331041001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	0.04	0.041	102	70-130	
Molybdenum	mg/L	0.014	0.04	0.055	104	70-130	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642781 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60331040001

METHOD BLANK: 2612231 Matrix: Water
Associated Lab Samples: 60331040001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/10/20 10:15	

LABORATORY CONTROL SAMPLE: 2612232

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 2612233

Parameter	Units	60330969001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1030	1020	1	10	

SAMPLE DUPLICATE: 2612234

Parameter	Units	60331012009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1050	1040	2	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642844 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60331040002, 60331040003, 60331040004, 60331040005

METHOD BLANK: 2612497 Matrix: Water
Associated Lab Samples: 60331040002, 60331040003, 60331040004, 60331040005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/10/20 12:44	

LABORATORY CONTROL SAMPLE: 2612498

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	994	99	80-120	

SAMPLE DUPLICATE: 2612499

Parameter	Units	60331012002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1010	1050	4	10	

SAMPLE DUPLICATE: 2612500

Parameter	Units	60330920001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	133	127	5	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642675
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60331040001, 60331040002

SAMPLE DUPLICATE: 2611838

Parameter	Units	60330430001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.5	6.5	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642933 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60331040003, 60331040004, 60331040005

SAMPLE DUPLICATE: 2612782

Parameter	Units	60331040003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

QC Batch: 642554 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

METHOD BLANK: 2611564 Matrix: Water
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/09/20 09:57	
Fluoride	mg/L	<0.20	0.20	03/09/20 09:57	
Sulfate	mg/L	<1.0	1.0	03/09/20 09:57	

METHOD BLANK: 2612086 Matrix: Water
Associated Lab Samples: 60331040001, 60331040002, 60331040003, 60331040004, 60331040005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/10/20 07:22	
Fluoride	mg/L	<0.20	0.20	03/10/20 07:22	
Sulfate	mg/L	<1.0	1.0	03/10/20 07:22	

LABORATORY CONTROL SAMPLE: 2611565

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	96	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 2612087

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2611566 2611567

Parameter	Units	60330808001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21.3	10	10	31.8	32.1	105	108	80-120	1	15	
Fluoride	mg/L	9.5	5	5	14.5	14.7	101	105	80-120	1	15	
Sulfate	mg/L	14.3	5	5	19.5	19.6	105	107	80-120	1	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

MATRIX SPIKE SAMPLE: 2611568

Parameter	Units	60331040003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	106	100	206	100	80-120	
Fluoride	mg/L	0.25	2.5	2.5	89	80-120	
Sulfate	mg/L	544	250	806	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

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

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC INACTIVE BOTTOM ASH POND
Pace Project No.: 60331040

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331040001	**IBA-01-030320**	EPA 200.7	643043	EPA 200.7	643110
60331040002	**IBA-02-030420**	EPA 200.7	643043	EPA 200.7	643110
60331040003	**DUP-030420**	EPA 200.7	643043	EPA 200.7	643110
60331040004	**IBA-03-030420**	EPA 200.7	643043	EPA 200.7	643110
60331040005	**IBA-04-030420**	EPA 200.7	643043	EPA 200.7	643110
60331040001	**IBA-01-030320**	EPA 200.8	642549	EPA 200.8	642738
60331040002	**IBA-02-030420**	EPA 200.8	642549	EPA 200.8	642738
60331040003	**DUP-030420**	EPA 200.8	642549	EPA 200.8	642738
60331040004	**IBA-03-030420**	EPA 200.8	642549	EPA 200.8	642738
60331040005	**IBA-04-030420**	EPA 200.8	642549	EPA 200.8	642738
60331040001	**IBA-01-030320**	SM 2540C	642781		
60331040002	**IBA-02-030420**	SM 2540C	642844		
60331040003	**DUP-030420**	SM 2540C	642844		
60331040004	**IBA-03-030420**	SM 2540C	642844		
60331040005	**IBA-04-030420**	SM 2540C	642844		
60331040001	**IBA-01-030320**	SM 4500-H+B	642675		
60331040002	**IBA-02-030420**	SM 4500-H+B	642675		
60331040003	**DUP-030420**	SM 4500-H+B	642933		
60331040004	**IBA-03-030420**	SM 4500-H+B	642933		
60331040005	**IBA-04-030420**	SM 4500-H+B	642933		
60331040001	**IBA-01-030320**	EPA 300.0	642554		
60331040002	**IBA-02-030420**	EPA 300.0	642554		
60331040003	**DUP-030420**	EPA 300.0	642554		
60331040004	**IBA-03-030420**	EPA 300.0	642554		
60331040005	**IBA-04-030420**	EPA 300.0	642554		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60331040

60331040

Client Name: Evergy

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-301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 1.9 Corr. Factor 0.3 Corrected 2.0

Date and initials of person examining contents: 3/26/26

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: LA	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Lot # L003173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

F-KS-C-003-Rev.11, February 28, 2018

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a L[illegible] DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A — **Required** Client Information:

Company:	EVERGY KANSAS CENTRAL, INC.
Address:	Jeffrey Energy Center (JEC)
	818 Kansas Ave, Topeka, KS 66612
Email To:	melissa.michels@evergy.com
Phone: 785-575-8113	Fax:
Requested Due Date/TAT:	7 day

Section B — **Required** Project Information:

Report To:	Melissa Michels
Copy To:	Jared Morrison, Jake Humphrey, Laura Hines
	JD Schlegel, Brandon Will, Sarah Hazelwood
Purchase Order No.:	10JEC-0000047747
Project Name:	JEC Inactive Bottom Ash Pond CCR
Project Number:	129778-036

Section C — Invoice Information:

Attention:	Accounts Payable
Company Name:	EVERGY KANSAS CENTRAL, INC
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Jasmine Amerin, 913-563-1403
Pace Profile #:	9657, 4

REGULATORY AGENCY

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

Site Location STATE: KS

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.8 Total Metals**	200.7 Total Metals*	300: Cl, F, SO4	2540C TDS	4500 H+B	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	IBA-01-030320	WT		03/03	1650				3	X		X						X	X	X	X	X		60331040
2	IBA-02-030420			03/04	800					X		X						X	X	X	X	X		
3	DUP-030420				810					X		X						X	X	X	X	X		
4	IBA-03-030420				945					X		X						X	X	X	X	X		
5	IBA-04-030420				1120					X		X						X	X	X	X	X		
6																								
7																								
8																								
9																								
10																								
11																								
12																								

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	03/06	1340		3/6	13:40				
200.8 Total Metals**: Co, Mo					3/7/20	1620	1.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Eli Fredrickson

SIGNATURE of SAMPLER: Eli Fredrickson — DATE Signed (MM/DD/YY): 03/06/20

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

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

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 10, 2022
File No. 129778

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

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

SUBJECT: Background Groundwater Monitoring Data
Statistical Evaluation
Completed July 15, 2019
Jeffrey Energy Center
Bottom Ash 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 Jeffrey Energy Center (JEC) Bottom Ash Pond (BAP; inactive). These background monitoring groundwater sampling events were completed from **March 2018 – March 2019,** with laboratory results received and accepted by **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 a coal combustion residual (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 EVALUATION

An interwell evaluation using the PL method was used to complete the statistical evaluation of the referenced data set. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composted of upgradient well data (IBA-4). 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 data set for all Appendix III constituents. The UPLs were calculated from the background well data set using Chemstat software after testing for outlier sample results that would warrant removal from the data set 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 data set.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample location (IBA-4) 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** 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 background groundwater monitoring statistical evaluation is provided in Table I. **Based on this statistical evaluation on groundwater sampling data collected in March 2019, SSIs above the background PLs are presented in Table I.** Evergy established an assessment monitoring program at the JEC BAP, with the first annual sampling event completed in December 2019.

Tables:
Table I – Summary of Background Groundwater Monitoring Statistical Evaluation

TABLE

TABLE I
SUMMARY OF BACKGROUND GROUNDWATER MONITORING STATISTICAL EVALUATION
BACKGROUND SAMPLING EVENTS (MARCH 2018 - MARCH 2019)
JEFFREY ENERGY CENTER BOTTOM ASH POND (INACTIVE)
ST. MARYS, KANSAS

													Interwell Comparison	
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)**	**Background Limits[1] (UPL) mg/L**	**SSI**
	CCR Appendix-III: Boron, Total (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	0.26	0.0002696	0.01642	0.06807	No	No	Stable		0.23	0.33	
IBA-1	8/8	0%	-	0.38	0.00002857	0.005345	0.01445	Yes	No	Stable	Non-parametric	0.37		Yes
IBA-2	8/8	0%	-	0.2	0.00008571	0.009258	0.04873	No	No	Stable	Normal	0.19		No
IBA-3	8/8	0%	-	0.3	0.0001696	0.01302	0.04715	No	No	Stable	Normal	0.27		No
	CCR Appendix-III: Calcium, Total (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	108	14.91	3.862	0.03729	No	No	Stable		104	125.14	
IBA-1	8/8	0%	-	312	51.43	7.171	0.02363	No	No	Stable	Normal	312		Yes
IBA-2	8/8	0%	-	221	155.4	12.46	0.06029	No	No	Stable	Normal	216		Yes
IBA-3	8/8	0%	-	264	84.79	9.208	0.03607	No	No	Stable	Normal	261		Yes
	CCR Appendix-III: Chloride, Total (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	19.3	0.3307	0.5751	0.03113	No	No	Stable		19.2	21.69	
IBA-1	8/8	0%	-	150	80.55	8.975	0.06978	Yes	No	Stable	Non-parametric	129		Yes
IBA-2	8/8	0%	-	144	155.4	12.46	0.1096	Yes	No	Stable	Non-parametric	114		Yes
IBA-3	8/8	0%	-	151	102.9	10.14	0.07986	No	No	Stable	Non-parametric	125		Yes
	CCR Appendix-III: Fluoride, Total (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	0.59	0.003698	0.06081	0.1145	No	No	Stable		0.58	0.87	
IBA-1	7/8	12%	0.2-0.2	0.63	0.01751	0.1323	0.385	Yes	No	Stable	Normal	0.40		No
IBA-2	7/8	12%	0.2-0.2	0.4	0.005907	0.07686	0.2541	No	No	Stable	Normal	0.39		No
IBA-3	7/8	12%	0.2-0.2	0.36	0.004055	0.06368	0.2244	No	No	Stable	Normal	0.35		No
	CCR Appendix-III: pH (lab), Total (SU)													
IBA-4 (upgradient)	8/8	0%	-	7.4	0.005	0.07071	0.00972	No	No	Stable		7.3	7.71	
IBA-1	8/8	0%	-	7.3	0.006964	0.08345	0.01161	No	No	Stable	Normal	7.1		No
IBA-2	8/8	0%	-	7.3	0.04	0.2	0.02797	Yes	No	Stable	Normal	7.3		No
IBA-3	8/8	0%	-	7.4	0.008571	0.09258	0.01268	No	No	Stable	Normal	7.3		No
	CCR Appendix-III: Sulfate, Total (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	180	109.6	10.47	0.06317	No	No	Stable		175	224.24	
IBA-1	8/8	0%	-	940	1714	41.4	0.04651	No	No	Stable	Normal	932		Yes
IBA-2	8/8	0%	-	771	5506	74.2	0.1252	Yes	No	Stable	Non-parametric	582		Yes
IBA-3	8/8	0%	-	998	6716	81.95	0.1014	Yes	No	Stable	Non-parametric	817		Yes
	CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)													
IBA-4 (upgradient)	8/8	0%	-	643	299.9	17.32	0.02792	No	No	Stable		614	716.99	
IBA-1	8/8	0%	-	1820	162700	403.3	0.2512	Yes	No	Stable	Non-parametric	1750		Yes
IBA-2	8/8	0%	-	1470	5229	72.31	0.05499	Yes	No	Stable	Normal	1320		Yes
IBA-3	8/8	0%	-	3170	329800	574.3	0.3272	Yes	No	Stable	Non-parametric	1590		Yes

Notes & Abbreviations:

[1] Based on background data collected from 03/13/2018 through 03/28/2019.
CCR = coal combustion residual
mg/L = milligrams per liter
SSI = statistically significant increase
SU = standard unit
UPL = upper prediction limit

ATTACHMENT 2-2
September 2019 Statistical Analysis

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

TECHNICAL MEMORANDUM

November 10, 2022
File No. 129778

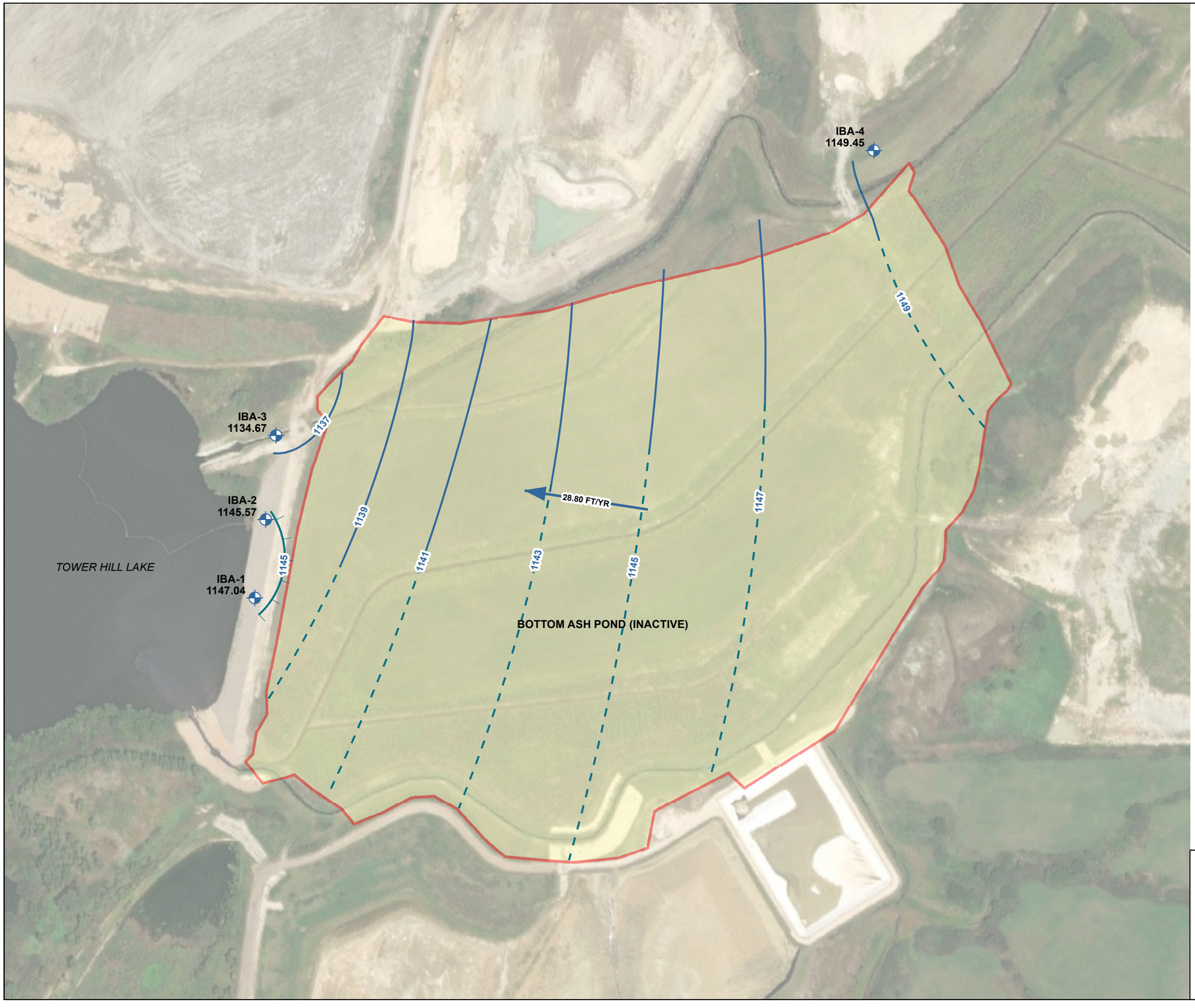
TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

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

SUBJECT: September 2019 Semi-Annual Groundwater Detection Monitoring Data
Statistical Analyses Summary
Jeffrey Energy Center
Bottom Ash Pond (Inactive)

Pursuant to Title 40 Code of Federal Regulations §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 Jeffrey Energy Center Bottom Ash Pond (inactive), which took place in September 2019. This semi-annual detection monitoring groundwater sampling event was completed on September 10, 2019, with laboratory results received and accepted on October 22, 2019. Due to the determination of statistically significant increases in the July 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

IBA-3
1133.73 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2019

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED

GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)

BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 10 SEPTEMBER 2019.

3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETIRIC ELEVATIONS MEASURED 10 SEPTEMBER 2019 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

N

0 300 600
SCALE IN FEET

HALEY ALDRICH

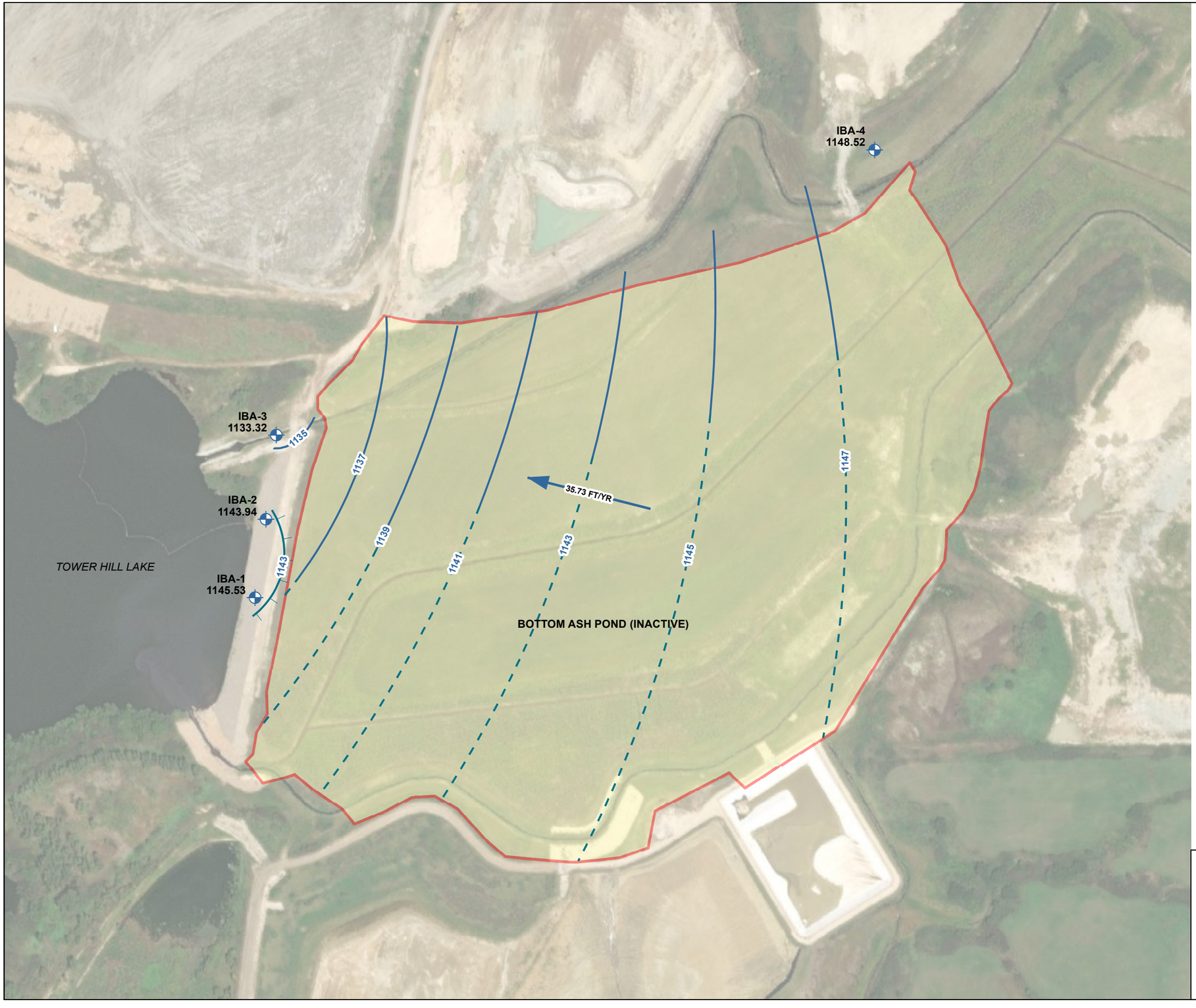
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 10, 2019

evergy

NOVEMBER 2022

FIGURE 2



LEGEND

- **IBA-3 1133.73** — WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), DECEMBER 2019
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 03 DECEMBER 2019.

3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETIRIC ELEVATIONS MEASURED 03 DECEMBER 2019 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

N

0 300 600
SCALE IN FEET

HALEY ALDRICH

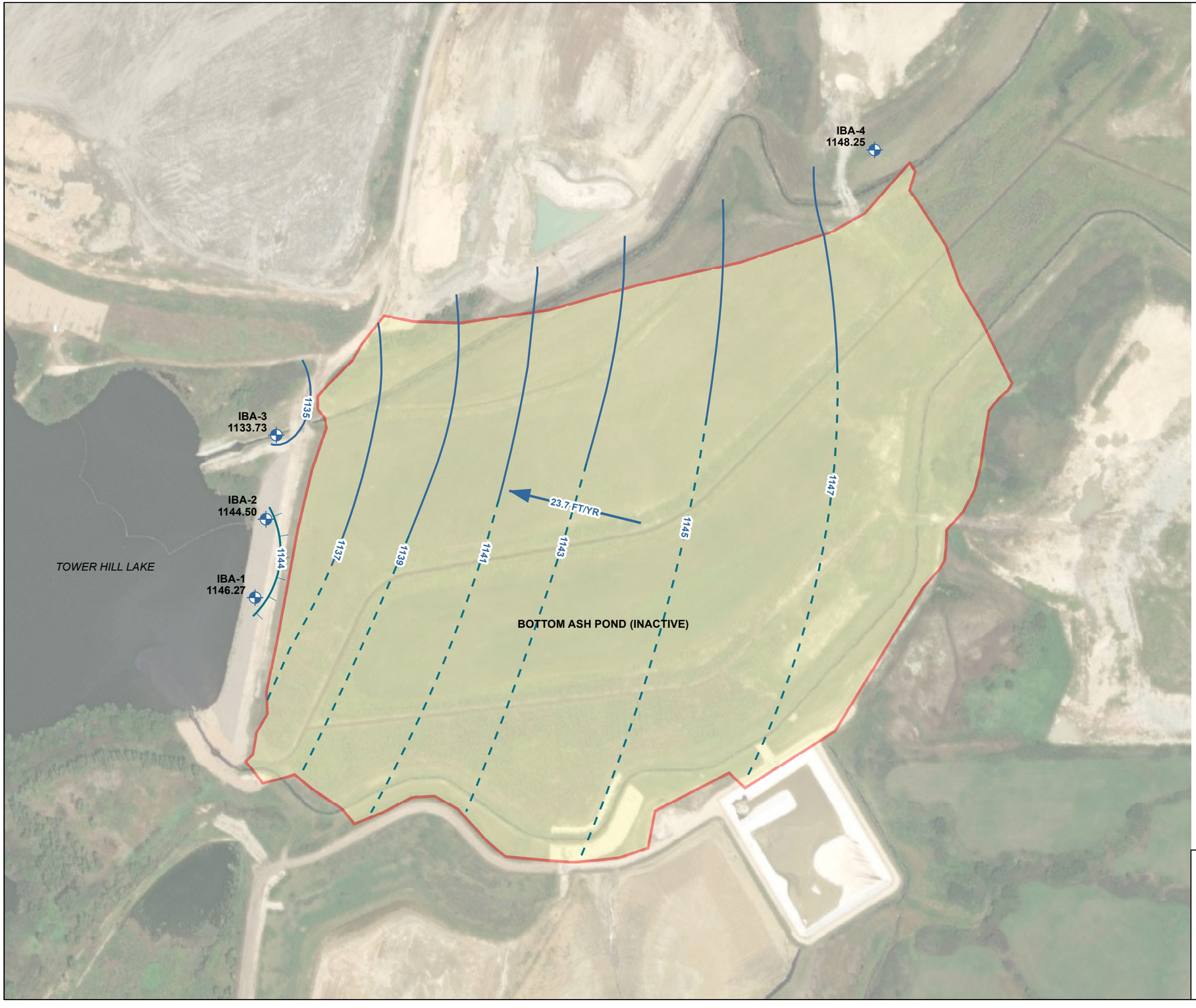
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP DECEMBER 3, 2019

evergy

NOVEMBER 2022

FIGURE 3



LEGEND

IBA-3 **1133.73**	WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), MARCH 2020
	MONITORING WELL
	PIEZOMETER OBSERVATION ONLY
	ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
	GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
	BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 04 MARCH 2020.

3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETIRIC ELEVATIONS MEASURED 04 MARCH 2020 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

N

0 300 600
SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MARCH 4, 2020

evergy

NOVEMBER 2022

FIGURE 4