HALEY ALDRICH

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2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
FLUE GAS DESULFURIZATION LANDFILL
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Evergy Kansas Central, Inc.
Topeka, Kansas

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Revision No.	Date	Notes
0	2/1/2021	Original
1	4/16/2021	Revised to include groundwater potentiometric elevation contour maps for 2020

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This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring program for the Jeffrey Energy Center Flue Gas Desulfurization (FGD) Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2020) and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2020 Annual Groundwater Monitoring and Corrective Action Report for the FGD Landfill is, to the best of my knowledge, accurate and complete.

Signed: _____
Professional Geologist

Mark Nicholls
Digitally signed by Mark Nicholls
Date: 2021.04.16 14:11:22 -07'00'

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

1. Introduction

This 2020 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the Flue Gas Desulfurization (FGD) Landfill at the Jeffrey Energy Center (JEC), operated by Evergy Kansas Central, Inc. (Evergy). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency Coal Combustion Residual (CCR) Rule (Rule) effective October 19, 2015, including subsequent revisions, specifically Code of Federal Regulations Title 40 (40 CFR), subsection 257.90(e). The Annual Report documents the groundwater monitoring system for the FGD Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2020) and documents compliance with the Rule. The specific requirements for the Annual Report listed in § 257.90(e) of the Rule are provided in Sections 1 and 2 of this Annual Report and are in bold italic font, followed by a narrative describing how each Rule requirement has been met.

1.1 40 CFR § 257.90(E)(6) SUMMARY

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

1.1.1 40 CFR § 257.90(e)(6)(i) – Initial Monitoring Program

At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

At the start of the current annual reporting period (January 1, 2020), the FGD Landfill was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

1.1.2 40 CFR § 257.90(e)(6)(ii) – Final Monitoring Program

At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

At the end of the current annual reporting period (December 31, 2020), the FGD Landfill was operating under a detection monitoring program in compliance with 40 CFR § 257.94.

1.1.3 40 CFR § 257.90(e)(6)(iii) – Statistically Significant Increases

If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):

1.1.3.1 40 CFR § 257.90(e)(6)(iii)(a)

Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and

The FGD Landfill was operating under an assessment monitoring program until August 2020. No detection monitoring statistical evaluations were completed on appendix III constituents in 2020.

1.1.3.2 40 CFR § 257.90(e)(6)(iii)(b)

Provide the date when the assessment monitoring program was initiated for the CCR unit.

An assessment monitoring program was initiated on July 17, 2018 for the FGD Landfill with a notification establishing assessment monitoring provided on August 15, 2018 to meet the requirements of 40 CFR § 257.95. The FGD Landfill returned to a detection monitoring program on August 14, 2020.

1.1.4 40 CFR § 257.90(e)(6)(iv) – Statistically Significant Levels

If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:

1.1.4.1 40 CFR § 257.90(e)(6)(iv)(A) – Statistically Significant Level Constituents

Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;

No statistically significant levels were identified above the groundwater protection standard for those constituents listed in appendix IV to this part in 2020 for the FGD Landfill.

1.1.4.2 40 CFR § 257.90(e)(6)(iv)(B) – Initiation of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was initiated for the CCR unit;

No assessment of corrective measures was required to be initiated in 2020 for this unit. The FGD Landfill was operating under an assessment monitoring program until August 2020 and has since returned to a detection monitoring program.

1.1.4.3 40 CFR § 257.90(e)(6)(iv)(C) – Assessment of Corrective Measures Public Meeting

Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

An assessment of corrective measures was not required for the FGD Landfill in 2020; therefore, a public meeting was not held.

1.1.4.4 40 CFR § 257.90(e)(6)(iv)(D) – Completion of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was completed for the CCR unit.

No assessment of corrective measures was required to be initiated in 2020 for this unit. The FGD Landfill was operating under an assessment monitoring program until August 2020 before returning to a detection monitoring program.

1.1.5 40 CFR § 257.90(e)(6)(v) – Selection of Remedy

Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and

The FGD Landfill transitioned from an assessment monitoring program to a detection monitoring program in August 2020, and no remedy was required to be selected.

1.1.6 40 CFR § 257.90(e)(6)(vi) – Remedial Activities

Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

No remedial activities were required in 2020.

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) [Suspension of groundwater monitoring requirements] of this section.

Evergy has installed and certified a groundwater monitoring system at the JEC FGD Landfill. The FGD Landfill 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).

This Annual Report describes monitoring completed and actions taken for the groundwater monitoring system at the FGD Landfill 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 in the calendar year 2020.

2.2.1 Status of the Groundwater Monitoring Program

Concentrations of appendix III and detected appendix IV constituents were shown to be at or below background values for two consecutive sampling events in September 2019 and March 2020. In accordance with 40 CFR § 257.95(e), the FGD Landfill returned to detection monitoring of the CCR unit in August 2020.

2.2.2 Key Actions Completed

The 2019 Annual Groundwater Monitoring and Corrective Action Report was completed in January 2020. Statistical evaluation was completed in January 2020 on analytical data from the September 2019 semi-annual assessment monitoring sampling event.

A semi-annual assessment monitoring sampling event was completed in March 2020 for detected appendix IV constituents identified from the June 2019 annual assessment monitoring sampling event. Statistical evaluation was completed in July 2020 on analytical data from the March 2020 assessment monitoring sampling event.

While statistical evaluation was being completed on analytical data from the March 2020 semi-annual assessment monitoring sampling, an annual assessment monitoring sampling event was completed in June 2020 to identify detected appendix IV constituents for subsequent semi-annual assessment monitoring sampling events planned for September 2020 and March 2021.

In accordance with 40 CFR § 257.95(e), the FGD Landfill returned to a detection monitoring program in August 2020. A semi-annual detection monitoring sampling event was completed in September 2020. Statistical evaluation of the results from the September 2020 semi-annual detection monitoring sampling event are due to be completed in January 2021 and will be reported in the next annual report.

2.2.3 Problems Encountered

One problem encountered during groundwater monitoring activities in 2020 consisted of laboratory analytical errors that required the laboratory to reanalyze select analytical results. Various appendix III constituents (calcium, chloride, sulfate, and total dissolved solids) were reanalyzed for MW-FGD2, MW-FGD-3, and MW-FGD-4 in April 2020 due to suspected erroneous readings in the March 2020 analytical results. Thallium was also reanalyzed at MW-FGD-6 in June 2020 to improve the dilution factor for the sample. These are the only issues that needed to be addressed at the FGD Landfill in 2020.

2.2.4 Actions to Resolve Problems

The resolution to problems encountered in 2020 included additional laboratory analyses as described above. The analytical results were revised accordingly. No other problems were encountered at the FGD Landfill in 2020; therefore, no actions to resolve problems were required.

2.2.5 Projected Key Activities for Upcoming Year

Key activities planned for 2021 include the completion of the 2020 Annual Groundwater Monitoring and Corrective Action Report, statistical evaluation of semi-annual detection monitoring analytical data collected in September 2020, semi-annual detection monitoring, and subsequent statistical evaluations.

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)

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 FGD Landfill 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 in 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 § 257.94(b), § 257.95(b), and § 257.95(d)(1), two independent assessment monitoring samples and one independent detection monitoring sample from each background and downgradient monitoring well were collected in 2020. A summary including sample names, dates of sample collection, field parameters, and monitoring data obtained for the groundwater monitoring program for the JEC FGD Landfill is presented in Table I of this report. Groundwater potentiometric elevation contour maps associated with each groundwater monitoring sampling event in 2020 are provided in Figures 2 through 4.

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

The assessment monitoring program was initiated on July 17, 2018 with a notification establishing assessment monitoring provided on August 15, 2018 to meet the requirements of 40 CFR § 257.95. In accordance with 40 CFR § 257.95(e), the concentrations of appendix III and detected appendix IV constituents at the FGD Landfill were shown to be at or below background values for two consecutive sampling events; therefore, the CCR unit returned to detection monitoring on August 14, 2020.

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 in calendar year 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 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.

No alternate source demonstration or certification was required in 2020; therefore, no demonstration or certification is applicable.

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

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

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

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

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

An assessment monitoring program had been implemented at the CCR unit since July 17, 2018. The program transitioned back to detection monitoring in August 2020. Two rounds of assessment monitoring sampling were completed in 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 FGD Landfill are included in Tables II and III. The background concentrations and groundwater protection standards provided in Tables II and III were utilized for the statistical evaluations completed in 2020 for September 2019 and March 2020 semi-annual assessment monitoring sampling events, respectively.

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 alternate source demonstration or certification was required in 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 in 2020; therefore, no demonstration or certification is applicable for this unit.

TABLES

TABLE I
SUMMARY OF ANALYTICAL RESULTS - 2020 ASSESSMENT AND DETECTION MONITORING
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

Location	Upgradient							Downgradient					
	MW-FGD-1				MW-FGD-6			MW-FGD-2			MW-FGD-3		
Measure Point (TOC)	1239.05				1277.52			1184.20			1186.26		
Sample Name	FGD-01-030520	DUP-FGD-030520	FGD-01-061120	FGD-01-091420	FGD-06-030520	FGD-06-061120	FGD-06-091420	FGD-02-030520	FGD-02-061120	FGD-02-091420	FGD-03-030520	FGD-03-061120	FGD-03-091420
Sample Date	03/05/2020	03/05/2020	06/11/2020	9/14/2020	03/05/2020	06/11/2020	9/14/2020	03/05/2020	06/11/2020	9/14/2020	03/05/2020	06/11/2020	9/14/2020
Monitoring Program	Assessment	Assessment	Assessment	Detection	Assessment	Assessment	Detection	Assessment	Assessment	Detection	Assessment	Assessment	Detection
Final Lab Report Date	3/18/2020	3/18/2020	6/23/2020	9/25/2020	3/18/2020	6/23/2020	9/25/2020	3/18/2020	6/23/2020	9/25/2020	3/18/2020	6/23/2020	9/25/2020
Final Lab Report Revision Date	4/10/2020	4/10/2020	6/29/2020	N/A	4/10/2020	6/29/2020	N/A	4/10/2020	6/29/2020	N/A	4/10/2020	6/29/2020	N/A
Final Radiation Lab Report Date	3/30/2020	3/30/2020	7/8/2020	N/A	3/30/2020	7/8/2020	N/A	3/30/2020	7/8/2020	N/A	3/30/2020	7/8/2020	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
Lab Data Reviewed and Accepted	4/20/2020	4/20/2020	7/16/2020	10/23/2020	4/20/2020	7/16/2020	10/23/2020	4/20/2020	7/16/2020	10/23/2020	4/20/2020	7/16/2020	10/23/2020
Depth to Water (ft btoc)	72.05	-	70.57	72.29	99.68	99.16	99.70	18.42	20.50	21.42	22.46	21.43	23.40
Temperature (Deg C)	9.95	-	15.68	22.09	9.48	17.33	26.69	10.4	15.37	18.28	10.35	15.59	18.30
Conductivity, Field (µS/cm)	846	-	913	792	9323	10300	8660	1397	1520	1460	1619	1700	1490
Turbidity, Field (NTU)	0.72	-	0.0	9.5	0.61	0.0	21.8	0.86	0.0	0.0	0.81	0.0	0.0
Boron, Total (mg/L)	**0.11**	< 0.10	-	**0.13**	**10.6**	-	**10.9**	**0.21**	-	**0.23**	**0.16**	-	**0.18**
Calcium, Total (mg/L)	**100**	**100**	-	**99.2**	**650**	-	**586**	**216**	-	**236**	**228**	-	**190**
Chloride (mg/L)	**50.6**	**51.5**	-	**50.2**	**2180**	-	**2440**	**62.5**	-	**85.1**	**121**	-	**132**
Fluoride (mg/L)	**0.31**	**0.33**	**0.36**	**0.41**	**1.2**	**1.1**	**1.6**	**0.22**	**0.35**	**0.33**	< 0.20	**0.35**	**0.37**
Sulfate (mg/L)	**91.5**	**93.9**	-	**106**	**2700**	-	**3030**	**422**	-	**528**	**473**	-	**479**
pH (lab) (su)	**7.4**	**7.3**	-	**7.3**	**7.0**	-	**7.3**	**7.1**	-	**7.1**	**7.0**	-	**7.1**
TDS (mg/L)	**529**	**579**	-	**521**	**8060**	-	**8450**	**1010**	-	**1280**	**1160**	-	**1210**
Antimony, Total (mg/L)	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-
Arsenic, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	**0.0074**	**0.0075**	-	< 0.0010	< 0.0010	-	< 0.0010	**0.0011**	-
Barium, Total (mg/L)	**0.28**	**0.28**	**0.30**	-	**0.016**	**0.017**	-	**0.061**	**0.063**	-	**0.074**	**0.089**	-
Beryllium, Total (mg/L)	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-
Cadmium, Total (mg/L)	-	-	< 0.00050	-	-	< 0.00050	-	-	< 0.00050	-	-	< 0.00050	-
Chromium, Total (mg/L)	-	-	< 0.0050	-	-	< 0.0050	-	-	< 0.0050	-	-	< 0.0050	-
Cobalt, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	**0.0020**	**0.0017**	-	< 0.0010	< 0.0010	-
Lead, Total (mg/L)	-	-	< 0.010	-	-	< 0.010	-	-	< 0.010	-	-	< 0.010	-
Lithium, Total (mg/L)	**0.015**	**0.014**	**0.014**	-	**0.45**	**0.45**	-	**0.012**	< 0.010	-	**0.02**	**0.015**	-
Molybdenum, Total (mg/L)	**0.0013**	**0.0013**	**0.0014**	-	**0.014**	**0.011**	-	**0.0038**	**0.0038**	-	**0.0057**	**0.0060**	-
Selenium, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-
Thallium, Total (mg/L)	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-	-	< 0.0010	-
Mercury, Total (mg/L)	-	-	< 0.20	-	-	< 0.20	-	-	< 0.20	-	-	< 0.20	-
Radium (pCi/L)	**1.01 ± 0.551 (0.848)**	0.717 ± 0.485 (0.738)	0.574 ± 0.645 (0.877)	-	**7.24 ± 1.42 (0.785)**	**7.34 ± 1.50 (0.992)**	-	0.181 ± 0.468 (0.718)	0.231 ± 0.818 (1.32)	-	0.533 ± 0.528 (0.820)	0.358 ± 0.605 (1.02)	-

TABLE I
SUMMARY OF ANALYTICAL RESULTS - 2020 ASSESSMENT AND DETECTION MONITORING
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

Location	Downgradient							
	MW-FGD-4				MW-FGD-9			
Measure Point (TOC)	1188.43				1175.51			
Sample Name	FGD-04-030520	FGD-04-061120	FGD-DUP-061120	FGD-04-091420	FGD-09-030620	FGD-09-061120	FGD-09-091420	DUP-FGD-091420
Sample Date	03/05/2020	06/11/2020	06/11/2020	9/14/2020	03/06/2020	06/11/2020	9/14/2020	9/14/2020
Monitoring Program	Assessment	Assessment	Assessment	Detection	Assessment	Assessment	Detection	Detection
Final Lab Report Date	3/18/2020	6/23/2020	6/23/2020	9/25/2020	3/18/2020	6/23/2020	9/25/2020	9/25/2020
Final Lab Report Revision Date	4/10/2020	6/29/2020	6/29/2020	N/A	4/10/2020	6/29/2020	N/A	N/A
Final Radiation Lab Report Date	3/30/2020	7/8/2020	7/8/2020	N/A	3/30/2020	7/8/2020	N/A	N/A
Final Radiation Lab Report Revision Date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lab Data Reviewed and Accepted	4/20/2020	7/16/2020	7/16/2020	10/23/2020	4/20/2020	7/16/2020	10/23/2020	10/23/2020
Depth to Water (ft btoc)	30.54	30.12	-	30.50	8.78	7.53	8.72	-
Temperature (Deg C)	10.06	15.14	-	18.53	5.84	15.28	20.86	-
Conductivity, Field (µS/cm)	1853	2350	-	2060	0.948	1030	935	-
Turbidity, Field (NTU)	0.68	0.0	-	0.0	2.15	0.0	0.0	-
Boron, Total (mg/L)	**0.34**	-	-	**0.40**	**0.42**	-	**0.51**	**0.52**
Calcium, Total (mg/L)	**282**	-	-	**322**	**122**	-	**129**	**129**
Chloride (mg/L)	**161**	-	-	**166**	**35.7**	-	**31.2**	**34.8**
Fluoride (mg/L)	**0.33**	**0.28**	**0.28**	**0.46**	**0.45**	**0.50**	**0.55**	**0.55**
Sulfate (mg/L)	**726**	-	-	**690**	**211**	-	**271**	**263**
pH (lab) (su)	**7.0**	-	-	**7.1**	**7.2**	-	**7.4**	**7.2**
TDS (mg/L)	**1590**	-	-	**1760**	**692**	-	**708**	**702**
Antimony, Total (mg/L)	-	< 0.0010	< 0.0010	-	-	< 0.0010	-	-
Arsenic, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	**0.0016**	**0.0016**	-	-
Barium, Total (mg/L)	**0.054**	**0.058**	**0.059**	-	**0.081**	**0.087**	-	-
Beryllium, Total (mg/L)	-	< 0.0010	**0.0010**	-	-	< 0.0010	-	-
Cadmium, Total (mg/L)	-	< 0.00050	< 0.00050	-	-	< 0.00050	-	-
Chromium, Total (mg/L)	-	< 0.0050	< 0.0050	-	-	< 0.0050	-	-
Cobalt, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	**0.0010**	-	-
Lead, Total (mg/L)	-	< 0.010	< 0.010	-	-	< 0.010	-	-
Lithium, Total (mg/L)	**0.019**	**0.013**	**0.013**	-	< 0.010	< 0.010	-	-
Molybdenum, Total (mg/L)	**0.0035**	**0.0036**	**0.0037**	-	**0.0092**	**0.0097**	-	-
Selenium, Total (mg/L)	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-
Thallium, Total (mg/L)	-	< 0.0010	< 0.0010	-	-	< 0.0010	-	-
Mercury, Total (mg/L)	-	< 0.20	< 0.20	-	-	< 0.20	-	-
Radium (pCi/L)	0.668 ± 0.487 (0.722)	**0.917 ± 0.57 (0.882)**	0.384 ± 0.525 (0.962)	-	**0.952 ± 0.512 (0.810)**	0.195 ± 0.705 (1.15)	-	-

Notes and Abbreviations:

Bold value: *Detection above laboratory reporting limit or minimum detectable concentration (MDC).*
Radiological results are presented as activity plus or minus uncertainty with MDC.
Data presented in this table were verified against the laboratory and validation reports.
µS/cm = micro Siemens per centimeter
Deg C = degrees Celsius
ft btoc = feet below top of casing
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
ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
SEPTEMBER 2019 SAMPLING EVENT
JEFFREY ENERGY CENTER
FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

Well Number	Background Value[1]	GWPS
CCR Appendix-IV Arsenic, Total (mg/L)		
MW-FGD-1 (upgradient)	0.017	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.017
MW-FGD-3		0.017
MW-FGD-4		0.017
MW-FGD-9		0.017
CCR Appendix-IV Barium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.310	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		2
MW-FGD-3		2
MW-FGD-4		2
MW-FGD-9		2
CCR Appendix-IV Cobalt, Total (mg/L)		
MW-FGD-1 (upgradient)	0.0087	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.0087
MW-FGD-3		0.0087
MW-FGD-4		0.0087
MW-FGD-9		0.0087
CCR Appendix-IV Fluoride, Total (mg/L)		
MW-FGD-1 (upgradient)	1.800	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		4.0
MW-FGD-3		4.0
MW-FGD-4		4.0
MW-FGD-9		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.450	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.450
MW-FGD-3		0.450
MW-FGD-4		0.450
MW-FGD-9		0.450
CCR Appendix-IV Molybdenum, Total (mg/L)		
MW-FGD-1 (upgradient)	0.520	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.520
MW-FGD-3		0.520
MW-FGD-4		0.520
MW-FGD-9		0.520
CCR Appendix-IV Radium-226 & 228 Combined (pCi/L)		
MW-FGD-1 (upgradient)	4.92	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		5
MW-FGD-3		5
MW-FGD-4		5
MW-FGD-9		5
CCR Appendix-IV Selenium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.0046	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.05
MW-FGD-3		0.05
MW-FGD-4		0.05
MW-FGD-9		0.05

Notes and Abbreviations:

[1] Based on background 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

TABLE III
ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
MARCH 2020 SAMPLING EVENT
JEFFREY ENERGY CENTER
FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

Well Number	Background Value[1]	GWPS
CCR Appendix-IV Arsenic, Total (mg/L)		
MW-FGD-1 (upgradient)	0.019	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.019
MW-FGD-3		0.019
MW-FGD-4		0.019
MW-FGD-9		0.019
CCR Appendix-IV Barium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.310	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		2
MW-FGD-3		2
MW-FGD-4		2
MW-FGD-9		2
CCR Appendix-IV Cobalt, Total (mg/L)		
MW-FGD-1 (upgradient)	0.0087	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.0087
MW-FGD-3		0.0087
MW-FGD-4		0.0087
MW-FGD-9		0.0087
CCR Appendix-IV Fluoride, Total (mg/L)		
MW-FGD-1 (upgradient)	3.400	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		4.0
MW-FGD-3		4.0
MW-FGD-4		4.0
MW-FGD-9		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.450	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.450
MW-FGD-3		0.450
MW-FGD-4		0.450
MW-FGD-9		0.450
CCR Appendix-IV Molybdenum, Total (mg/L)		
MW-FGD-1 (upgradient)	0.520	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.520
MW-FGD-3		0.520
MW-FGD-4		0.520
MW-FGD-9		0.520
CCR Appendix-IV Radium-226 & 228 Combined (pCi/L)		
MW-FGD-1 (upgradient)	9.02	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		9.02
MW-FGD-3		9.02
MW-FGD-4		9.02
MW-FGD-9		9.02
CCR Appendix-IV Selenium, Total (mg/L)		
MW-FGD-1 (upgradient)	0.0046	NA
MW-FGD-6 (upgradient)		
MW-FGD-2		0.05
MW-FGD-3		0.05
MW-FGD-4		0.05
MW-FGD-9		0.05

Notes and Abbreviations:

[1] Based on background data collected through March 2020.

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

FIGURES

LEGEND

- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL AREA

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
4. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 500 1,000
SCALE IN FEET

HALEY ALDRICH

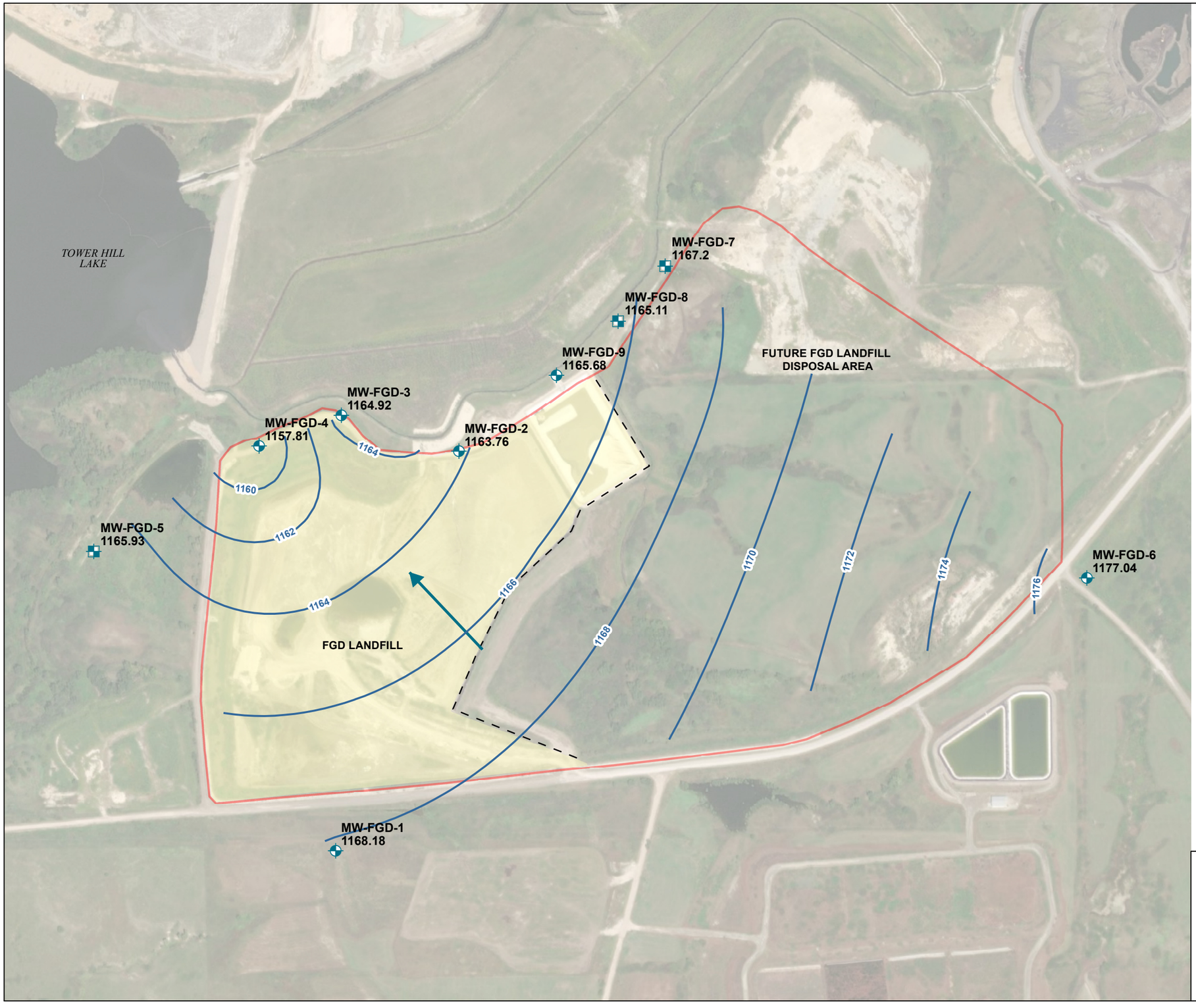
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

FGD LANDFILL MONITORING WELL LOCATION MAP

evergy

APRIL 2021

FIGURE 1



LEGEND

MW-FGD-6 1168.88 — WELL NAME WITH GROUNDWATER ELEVATION, (FT AMSL) MARCH 2020

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)

APPROXIMATE GROUNDWATER FLOW DIRECTION

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 03 MARCH 2020.

3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE 2020 ANNUAL REPORT.

4. AMSL = ABOVE MEAN SEA LEVEL

5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 450 900

SCALE IN FEET

HALEY ALDRICH

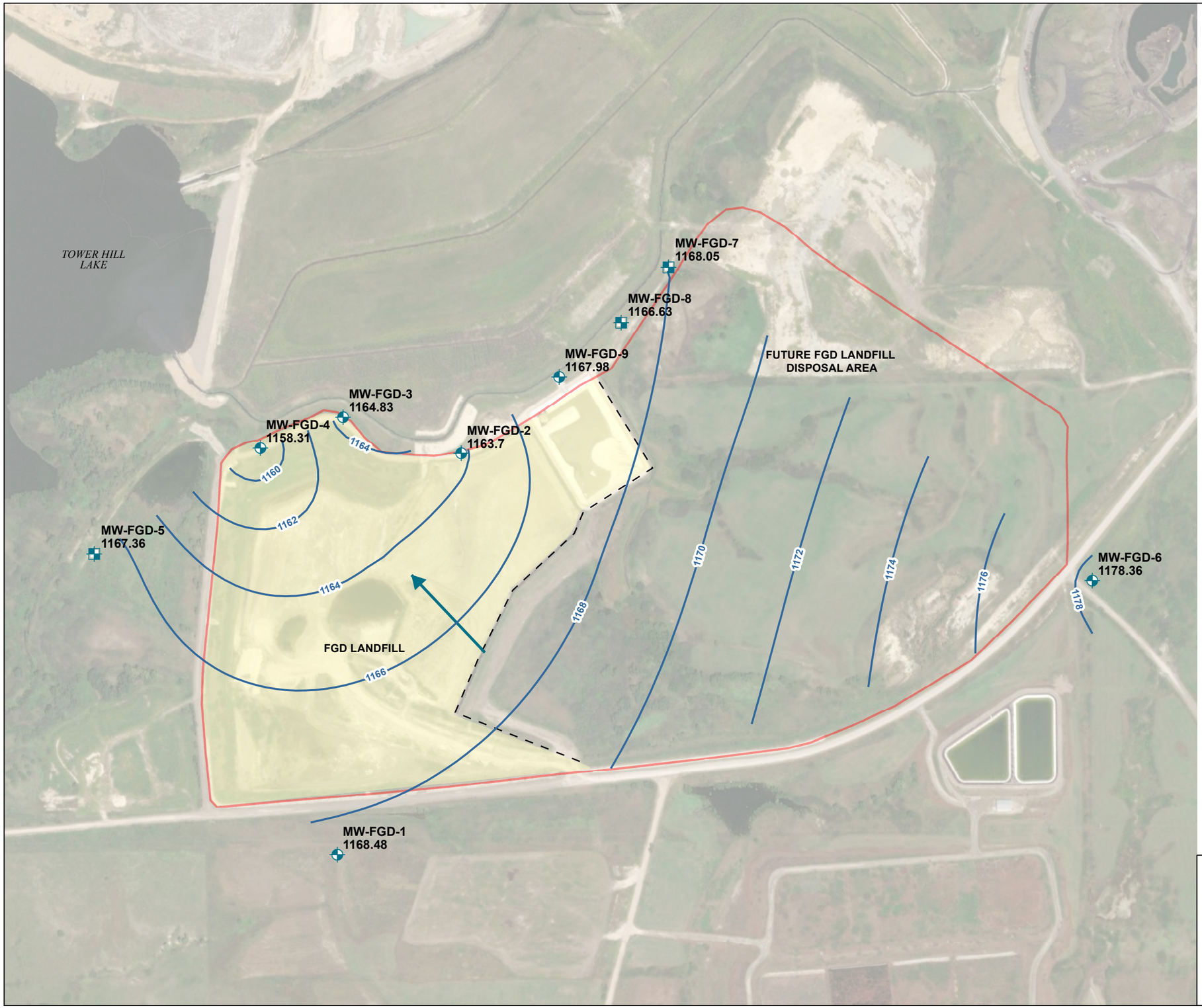
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MARCH 3, 2020

evergy

APRIL 2021

FIGURE 2



LEGEND

MW-FGD-6 1168.88 — WELL NAME WITH GROUNDWATER ELEVATION, (FT AMSL) JUNE 2020

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)

APPROXIMATE GROUNDWATER FLOW DIRECTION

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 11 JUNE 2020.

3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE 2020 ANNUAL REPORT.

4. AMSL = ABOVE MEAN SEA LEVEL

5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 450 900

SCALE IN FEET

HALEY ALDRICH

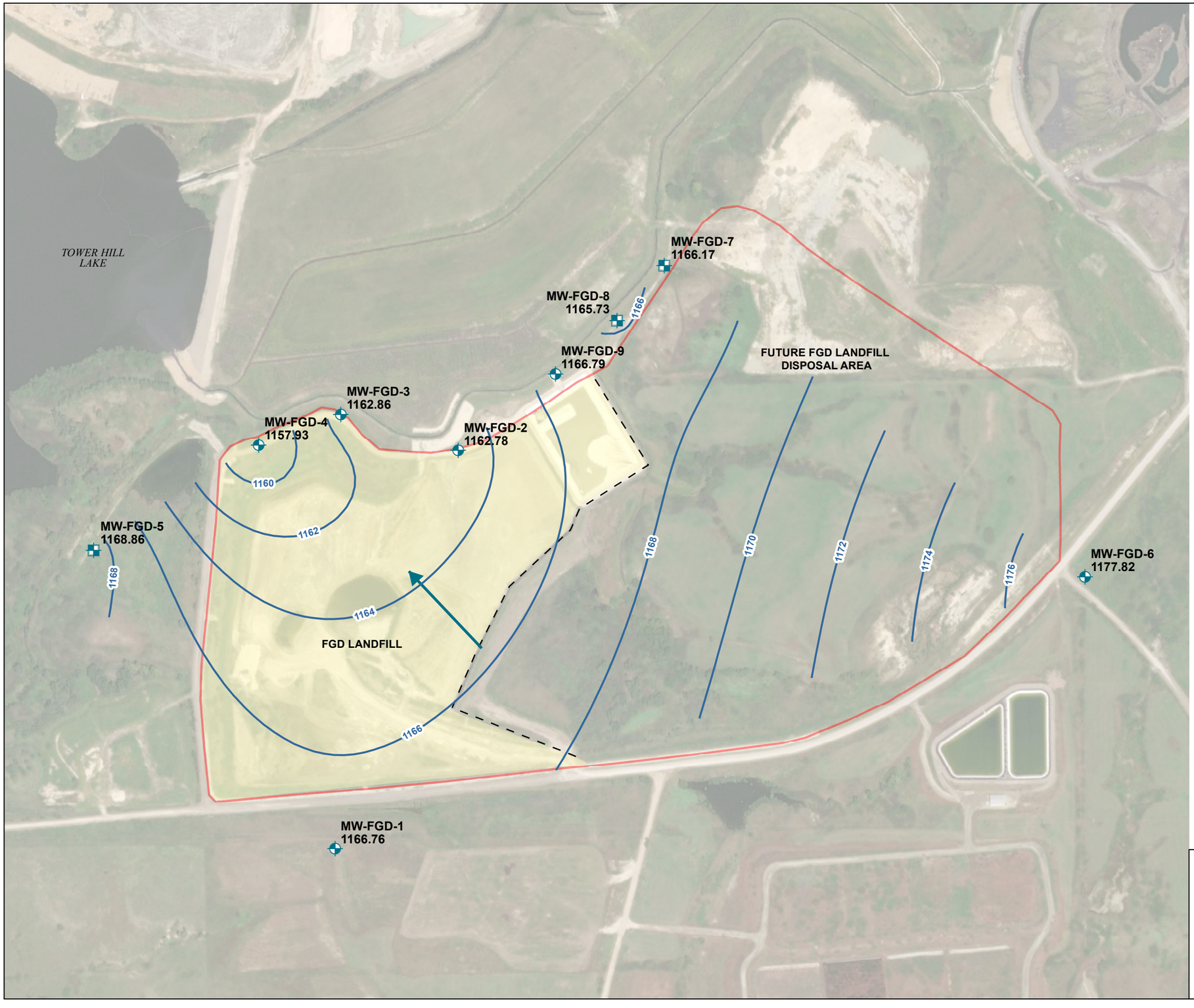
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP JUNE 11, 2020

evergy

APRIL 2021

FIGURE 3



LEGEND

MW-FGD-6 1168.88 — WELL NAME WITH GROUNDWATER ELEVATION, (FT AMSL) SEPTEMBER 2020

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)

APPROXIMATE GROUNDWATER FLOW DIRECTION

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 SEPTEMBER 2020.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE 2020 ANNUAL REPORT.
4. AMSL = ABOVE MEAN SEA LEVEL
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 450 900
SCALE IN FEET

HALEY ALDRICH

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

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 14, 2020

evergy

APRIL 2021

FIGURE 4

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

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

Mark Nicholls
Digitally signed by Mark Nicholls
Date: 2022.11.10 15:27:12 -07'00'

SUBJECT: 2020 Annual Groundwater Monitoring and Corrective Action Report Addendum
Evergy Kansas Central, Inc.
Jeffrey Energy Center
Flue Gas Desulfurization Landfill

The Evergy Kansas Central, Inc. (Evergy) Flue Gas Desulfurization (FGD) Landfill 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 in 2020 for the FGD Landfill was completed and placed in the facility's operating record on February 1, 2021, 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 2020 sampling events are included in Attachment 1, and a discussion of the applicable statistical analyses completed in 2020 are included in Attachment 2 of this addendum. Revision 1 of the 2020 GWMCA Report does include a

"Groundwater Potentiometric Elevation Contour Map" for each of the 2020 sampling events as Figures 2, 3, and 4. In those figures, the measured groundwater elevations for each well are listed. Those maps have been duplicated in this addendum as Attachment 3 and were modified to include the calculated groundwater flow rate and direction.

The Attachments to this addendum are described below:

- Attachment 1 – Laboratory Analytical Reports: Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the sampling events completed in March, June, and September 2020 are provided.
  - In accordance with 40 CFR § 257.95(e), the FGD Landfill returned to a detection monitoring program in August 2020.
- 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 in 2020. Statistical analyses completed in 2019 included:
  - Overview of the January 2020 statistical analyses for data obtained in the September 2019 sampling event.
    - Upgradient (MW-FGD-6) and downgradient (MW-FGD-9) monitoring wells were added to the monitor well system in support of an expansion to the FGD Landfill.
  - Overview of the July 2020 statistical analyses for data obtained in the March 2020 sampling events.
- Attachment 3 – Revised 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 March, June, and September 2020 are provided.

ATTACHMENT 1
Laboratory Analytical Reports

ATTACHMENT 1-1
March 2020 Sampling Event
Laboratory Analytical Report

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

April 10, 2020

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

RE: Project: JEC FDG CCR
Pace Project No.: 60331041

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 applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

Revised Report REV_1

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

Sincerely,

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

Enclosures

cc: Bob Beck, Evergy
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

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: JEC FDG CCR
Pace Project No.: 60331041

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

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

SAMPLE SUMMARY

Project: JEC FDG CCR
Pace Project No.: 60331041

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60331041001	**FGD-06-030520**	Water	03/05/20 09:35	03/06/20 16:25
60331041002	**FGD-01-030520**	Water	03/05/20 11:20	03/06/20 16:25
60331041003	**DUP-FGD-030520**	Water	03/05/20 11:30	03/06/20 16:25
60331041004	**FGD-04-030520**	Water	03/05/20 13:05	03/06/20 16:25
60331041005	**FGD-03-030520**	Water	03/05/20 14:15	03/06/20 16:25
60331041006	**FGD-02-030520**	Water	03/05/20 15:50	03/06/20 16:25
60331041007	**FGD-09-030620**	Water	03/06/20 08:15	03/06/20 16:25

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

SAMPLE ANALYTE COUNT

Project: JEC FDG CCR
Pace Project No.: 60331041

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60331041001	**FGD-06-030520**	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA	3	PASI-K
60331041002	**FGD-01-030520**	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA	3	PASI-K
60331041003	**DUP-FGD-030520**	EPA 200.7	HKC, JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA	3	PASI-K
60331041004	**FGD-04-030520**	EPA 200.7	HKC, JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS, JWR	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331041005	**FGD-03-030520**	EPA 200.7	HKC, JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS, JWR	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA, CNB	3	PASI-K
60331041006	**FGD-02-030520**	EPA 200.7	HKC, JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS, JWR	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA	3	PASI-K
60331041007	**FGD-09-030620**	EPA 200.7	JDE	4	PASI-K
		EPA 200.8	JGP	4	PASI-K
		SM 2540C	AJS	1	PASI-K
		SM 4500-H+B	MGS	1	PASI-K
		EPA 300.0	BLA	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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

PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Date: April 10, 2020

Amended report revised to include all re-run results for samples 60331041-003 (DUP-FGD-030520), 60331041-004 (FGD-04-030520), 60331041-005 (FGD-03-030520), and 60331041-006 (FGD-02-030520).

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

PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: April 10, 2020

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

QC Batch: 647013

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60331041004,75128722001

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

- MS (Lab ID: 2626955)
  - Calcium
- MS (Lab ID: 2626957)
  - Calcium
- MSD (Lab ID: 2626956)
  - Calcium

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Evergy Kansas Central, Inc.
Date: April 10, 2020

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Evergy Kansas Central, Inc.
Date: April 10, 2020

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

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

H1: Analysis conducted outside the EPA method holding time.
- FGD-02-030520 (Lab ID: 60331041006)
- FGD-03-030520 (Lab ID: 60331041005)
- FGD-04-030520 (Lab ID: 60331041004)

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.

QC Batch: 647761

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 2629708)
  - Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: Evergy Kansas Central, Inc.
Date: April 10, 2020

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

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

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- DUP-FGD-030520 (Lab ID: 60331041003)
- FGD-01-030520 (Lab ID: 60331041002)
- FGD-02-030520 (Lab ID: 60331041006)
- FGD-03-030520 (Lab ID: 60331041005)
- FGD-04-030520 (Lab ID: 60331041004)
- FGD-06-030520 (Lab ID: 60331041001)
- FGD-09-030620 (Lab ID: 60331041007)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331041

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: April 10, 2020

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-06-030520 **Lab ID: 60331041001** Collected: 03/05/20 09:35 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.016**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:37	7440-39-3	
Boron, Total Recoverable	**10.6**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:37	7440-42-8	
Calcium, Total Recoverable	**650**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:37	7440-70-2	
Lithium	**0.45**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:37	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**0.0074**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:22	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:22	7440-48-4	
Molybdenum, Total Recoverable	**0.014**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:22	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:22	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**8060**	mg/L	143	1		03/11/20 08:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		03/13/20 15:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**2180**	mg/L	200	200		03/10/20 14:06	16887-00-6	
Fluoride	**1.2**	mg/L	0.20	1		03/09/20 23:20	16984-48-8	
Sulfate	**2700**	mg/L	200	200		03/10/20 14:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-01-030520 **Lab ID: 60331041002** Collected: 03/05/20 11:20 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.28**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:40	7440-39-3	
Boron, Total Recoverable	**0.11**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:40	7440-42-8	
Calcium, Total Recoverable	**100**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:40	7440-70-2	
Lithium	**0.015**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:40	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:31	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:31	7440-48-4	
Molybdenum, Total Recoverable	**0.0013**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:31	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:31	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**529**	mg/L	10.0	1		03/11/20 08:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		03/13/20 15:59		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**50.6**	mg/L	10.0	10		03/10/20 14:22	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	1		03/09/20 23:36	16984-48-8	
Sulfate	**91.5**	mg/L	10.0	10		03/10/20 14:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: DUP-FGD-030520 **Lab ID: 60331041003** Collected: 03/05/20 11:30 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.28**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:42	7440-39-3	
Boron, Total Recoverable	**0.10**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:42	7440-42-8	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	04/01/20 11:25	04/02/20 12:21	7440-42-8	
Calcium, Total Recoverable	**100**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:42	7440-70-2	
Lithium	**0.014**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:42	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:34	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:34	7440-48-4	
Molybdenum, Total Recoverable	**0.0013**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:34	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:34	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**579**	mg/L	10.0	1		03/11/20 08:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		03/13/20 16:01		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**51.5**	mg/L	10.0	10		03/10/20 00:25	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		03/10/20 00:09	16984-48-8	
Sulfate	**93.9**	mg/L	10.0	10		03/10/20 00:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-04-030520 **Lab ID: 60331041004** Collected: 03/05/20 13:05 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.054**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:44	7440-39-3	
Boron, Total Recoverable	**0.34**	mg/L	0.10	1	04/01/20 11:25	04/02/20 12:29	7440-42-8	
Calcium, Total Recoverable	**298**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:44	7440-70-2	
Calcium, Total Recoverable	**282**	mg/L	0.20	1	04/01/20 11:25	04/02/20 12:29	7440-70-2	M1
Lithium	**0.019**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:44	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:38	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:38	7440-48-4	
Molybdenum, Total Recoverable	**0.0035**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:38	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:38	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1760**	mg/L	20.0	1		03/11/20 08:24		
Total Dissolved Solids	**1590**	mg/L	13.3	1		04/06/20 10:17		H1
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		03/11/20 09:54		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**167**	mg/L	50.0	50		03/10/20 01:13	16887-00-6	
Chloride	**161**	mg/L	50.0	50		04/01/20 11:34	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		03/10/20 00:57	16984-48-8	
Sulfate	**724**	mg/L	50.0	50		03/10/20 01:13	14808-79-8	
Sulfate	**726**	mg/L	50.0	50		04/01/20 11:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-03-030520 **Lab ID: 60331041005** Collected: 03/05/20 14:15 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
	Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.074**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:47	7440-39-3	
Boron, Total Recoverable	**0.16**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:47	7440-42-8	
Calcium, Total Recoverable	**227**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:47	7440-70-2	
Calcium, Total Recoverable	**228**	mg/L	0.20	1	04/01/20 11:25	04/02/20 12:36	7440-70-2	
Lithium	**0.020**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:47	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
	Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:41	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:41	7440-48-4	
Molybdenum, Total Recoverable	**0.0057**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:41	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:41	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
	Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1310**	mg/L	13.3	1		03/11/20 08:24		
Total Dissolved Solids	**1160**	mg/L	13.3	1		04/06/20 10:17		H1
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
	Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		03/11/20 09:57		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
	Pace Analytical Services - Kansas City							
Chloride	**131**	mg/L	50.0	50		03/10/20 01:45	16887-00-6	
Chloride	**121**	mg/L	10.0	10		04/02/20 09:18	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/10/20 01:29	16984-48-8	
Sulfate	**474**	mg/L	50.0	50		03/10/20 01:45	14808-79-8	
Sulfate	**473**	mg/L	50.0	50		04/01/20 12:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-02-030520 **Lab ID: 60331041006** Collected: 03/05/20 15:50 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
	Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.061**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:49	7440-39-3	
Boron, Total Recoverable	**0.21**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:49	7440-42-8	
Calcium, Total Recoverable	**212**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:49	7440-70-2	
Calcium, Total Recoverable	**216**	mg/L	0.20	1	04/01/20 11:25	04/02/20 12:38	7440-70-2	
Lithium	**0.012**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:49	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
	Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:44	7440-38-2	
Cobalt, Total Recoverable	**0.0020**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:44	7440-48-4	
Molybdenum, Total Recoverable	**0.0038**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:44	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:44	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
	Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1070**	mg/L	10.0	1		03/11/20 08:24		
Total Dissolved Solids	**1010**	mg/L	10.0	1		04/06/20 10:17		H1
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
	Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		03/11/20 09:59		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
	Pace Analytical Services - Kansas City							
Chloride	**62.5**	mg/L	10.0	10		03/10/20 02:49	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	1		03/10/20 02:33	16984-48-8	
Sulfate	**422**	mg/L	50.0	50		03/10/20 03:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FDG CCR
Pace Project No.: 60331041

Sample: FGD-09-030620 **Lab ID: 60331041007** Collected: 03/06/20 08:15 Received: 03/06/20 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.081**	mg/L	0.0050	1	03/11/20 10:14	03/12/20 15:57	7440-39-3	
Boron, Total Recoverable	**0.42**	mg/L	0.10	1	03/11/20 10:14	03/12/20 15:57	7440-42-8	
Calcium, Total Recoverable	**122**	mg/L	0.20	1	03/11/20 10:14	03/12/20 15:57	7440-70-2	
Lithium	**<0.010**	mg/L	0.010	1	03/11/20 10:14	03/12/20 15:57	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Total Recoverable	**0.0016**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:50	7440-38-2	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:50	7440-48-4	
Molybdenum, Total Recoverable	**0.0092**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:50	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	03/09/20 16:51	03/11/20 12:50	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**692**	mg/L	10.0	1		03/11/20 08:27		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		03/11/20 10:03		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**35.7**	mg/L	10.0	10		03/10/20 14:38	16887-00-6	
Fluoride	**0.45**	mg/L	0.20	1		03/10/20 03:21	16984-48-8	
Sulfate	**211**	mg/L	50.0	50		03/10/20 03:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 643043
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

METHOD BLANK: 2613103 Matrix: Water
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

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	216	10	223	109	70-130	
Lithium	mg/L	0.012	1	1.0	100	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 647013
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041003, 60331041004, 60331041005, 60331041006

METHOD BLANK: 2626953 Matrix: Water
Associated Lab Samples: 60331041003, 60331041004, 60331041005, 60331041006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	04/02/20 12:19	
Calcium	mg/L	<0.20	0.20	04/02/20 12:19	

LABORATORY CONTROL SAMPLE: 2626954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	0.5	0.48	97	85-115	
Calcium	mg/L	5	5.1	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2626955 2626956

Parameter	Units	60331041004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.34	0.5	0.5	0.76	0.81	86	95	70-130	6	20	
Calcium	mg/L	282	5	5	274	294	-162	244	70-130	7	20	M1

MATRIX SPIKE SAMPLE: 2626957

Parameter	Units	75128722001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	ND	0.5	0.58	98	70-130	
Calcium	mg/L	105000 ug/L	5	115	200	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 642549
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

METHOD BLANK: 2611550 Matrix: Water
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0010	0.0010	03/11/20 11:35	
Cobalt	mg/L	<0.0010	0.0010	03/11/20 11:35	
Molybdenum	mg/L	<0.0010	0.0010	03/11/20 11:35	
Selenium	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
Arsenic	mg/L	0.04	0.040	99	85-115	
Cobalt	mg/L	0.04	0.042	105	85-115	
Molybdenum	mg/L	0.04	0.040	101	85-115	
Selenium	mg/L	0.04	0.039	97	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
Arsenic	mg/L	0.0063	0.04	0.04	0.046	0.046	99	98	70-130	1	20	
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	
Selenium	mg/L	0.0011	0.04	0.04	0.037	0.037	90	90	70-130	0	20	

MATRIX SPIKE SAMPLE: 2611554

Parameter	Units	60331041001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.0074	0.04	0.044	90	70-130	
Cobalt	mg/L	<0.0010	0.04	0.041	102	70-130	
Molybdenum	mg/L	0.014	0.04	0.055	104	70-130	
Selenium	mg/L	<0.0010	0.04	0.036	91	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 643021 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

METHOD BLANK: 2613054 Matrix: Water
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/11/20 08:23	

LABORATORY CONTROL SAMPLE: 2613055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1040	104	80-120	

SAMPLE DUPLICATE: 2613056

Parameter	Units	60331041001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8060	7690	5	10	

SAMPLE DUPLICATE: 2613057

Parameter	Units	60331049005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1510	1520	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 647761 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041004, 60331041005, 60331041006

METHOD BLANK: 2629705 Matrix: Water
Associated Lab Samples: 60331041004, 60331041005, 60331041006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	04/06/20 10:16	

LABORATORY CONTROL SAMPLE: 2629706

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

SAMPLE DUPLICATE: 2629707

Parameter	Units	60333086001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	91.0	87.0	4	10	

SAMPLE DUPLICATE: 2629708

Parameter	Units	60333117006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	5220	4590	13	10	D6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 642933
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041001, 60331041002, 60331041003

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 643011
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041004, 60331041005, 60331041006, 60331041007

SAMPLE DUPLICATE: 2613018

Parameter	Units	60330920001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.5	5	5	H6

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 642554
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

METHOD BLANK: 2611564 Matrix: Water
Associated Lab Samples: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

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: 60331041001, 60331041002, 60331041003, 60331041004, 60331041005, 60331041006, 60331041007

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	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

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	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FDG CCR
Pace Project No.: 60331041

QC Batch: 647014
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60331041004, 60331041005

METHOD BLANK: 2626958 Matrix: Water
Associated Lab Samples: 60331041004, 60331041005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	04/01/20 08:36	
Sulfate	mg/L	<1.0	1.0	04/01/20 08:36	

METHOD BLANK: 2627866 Matrix: Water
Associated Lab Samples: 60331041004, 60331041005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	04/02/20 08:47	
Sulfate	mg/L	<1.0	1.0	04/02/20 08:47	

LABORATORY CONTROL SAMPLE: 2626959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

LABORATORY CONTROL SAMPLE: 2627867

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2626960 2626961

Parameter	Units	60331041004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	161	250	250	400	399	96	95	80-120	0	15	
Sulfate	mg/L	726	250	250	967	969	96	97	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: JEC FDG CCR
Pace Project No.: 60331041

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FDG CCR
Pace Project No.: 60331041

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331041001	**FGD-06-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041002	**FGD-01-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041003	**DUP-FGD-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041003	**DUP-FGD-030520**	EPA 200.7	647013	EPA 200.7	647132
60331041004	**FGD-04-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041004	**FGD-04-030520**	EPA 200.7	647013	EPA 200.7	647132
60331041005	**FGD-03-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041005	**FGD-03-030520**	EPA 200.7	647013	EPA 200.7	647132
60331041006	**FGD-02-030520**	EPA 200.7	643043	EPA 200.7	643110
60331041006	**FGD-02-030520**	EPA 200.7	647013	EPA 200.7	647132
60331041007	**FGD-09-030620**	EPA 200.7	643043	EPA 200.7	643110
60331041001	**FGD-06-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041002	**FGD-01-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041003	**DUP-FGD-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041004	**FGD-04-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041005	**FGD-03-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041006	**FGD-02-030520**	EPA 200.8	642549	EPA 200.8	642738
60331041007	**FGD-09-030620**	EPA 200.8	642549	EPA 200.8	642738
60331041001	**FGD-06-030520**	SM 2540C	643021		
60331041002	**FGD-01-030520**	SM 2540C	643021		
60331041003	**DUP-FGD-030520**	SM 2540C	643021		
60331041004	**FGD-04-030520**	SM 2540C	643021		
60331041004	**FGD-04-030520**	SM 2540C	647761		
60331041005	**FGD-03-030520**	SM 2540C	643021		
60331041005	**FGD-03-030520**	SM 2540C	647761		
60331041006	**FGD-02-030520**	SM 2540C	643021		
60331041006	**FGD-02-030520**	SM 2540C	647761		
60331041007	**FGD-09-030620**	SM 2540C	643021		
60331041001	**FGD-06-030520**	SM 4500-H+B	642933		
60331041002	**FGD-01-030520**	SM 4500-H+B	642933		
60331041003	**DUP-FGD-030520**	SM 4500-H+B	642933		
60331041004	**FGD-04-030520**	SM 4500-H+B	643011		
60331041005	**FGD-03-030520**	SM 4500-H+B	643011		
60331041006	**FGD-02-030520**	SM 4500-H+B	643011		
60331041007	**FGD-09-030620**	SM 4500-H+B	643011		
60331041001	**FGD-06-030520**	EPA 300.0	642554		
60331041002	**FGD-01-030520**	EPA 300.0	642554		
60331041003	**DUP-FGD-030520**	EPA 300.0	642554		
60331041004	**FGD-04-030520**	EPA 300.0	642554		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FDG CCR
Pace Project No.: 60331041

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331041004	**FGD-04-030520**	EPA 300.0	647014		
60331041005	**FGD-03-030520**	EPA 300.0	642554		
60331041005	**FGD-03-030520**	EPA 300.0	647014		
60331041006	**FGD-02-030520**	EPA 300.0	642554		
60331041007	**FGD-09-030620**	EPA 300.0	642554		

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Sample Condition Upon Receipt

WO# : 60331041

60331041

Client Name: Energy

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

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

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

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

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

Cooler Temperature (°C): **As-read** 2.2 **Corr. Factor** 0.3 **Corrected** 2.3

Date and initials of person examining contents: 3.7.26

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 # 603173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a L... 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 FDG 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, 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	Y/N	Analysis Test: 200.7 Total Metals*	Analysis Test: 200.8 Total Metals**	Analysis Test: 4500 H+B	Analysis Test: 300: Cl, F, SO4	Analysis Test: 2540C TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	FGD-06-030520	WT		03/05	935				3	X		X							X	X	X	X	X		60331041
2	FGD-01-030520				1120					X		X							X	X	X	X	X		
3	DUP-FGD-030520				1130					X		X							X	X	X	X	X		
4	FGD-04-030520				1305					X		X							X	X	X	X	X		
5	FGD-03-030520				1415					X		X							X	X	X	X	X		
6	FGD-02-030520				1550					X		X							X	X	X	X	X		
7	FGD-09-030620			03/06	815					X		X							X	X	X	X	X		
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
200.7 Total Metals*: B, Ca, Ba, Li	Eli Fredrickson #24	03/06	1340		3-6	13:40				
200.8 Total Metals**: As, Co, Mo, Se					3/6/20	11:25	2.2	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

*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

March 30, 2020

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

RE: Project: JEC FDG CCR
Pace Project No.: 60331129

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on March 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Greensburg

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

Sincerely,

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

Enclosures

cc: 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

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CERTIFICATIONS

Project: JEC FDG CCR
Pace Project No.: 60331129

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

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SAMPLE SUMMARY

Project: JEC FDG CCR
Pace Project No.: 60331129

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60331129001	**FGD-06-030520**	Water	03/05/20 09:35	03/09/20 10:10
60331129002	**FGD-01-030520**	Water	03/05/20 11:20	03/09/20 10:10
60331129003	**DUP-FGD-030520**	Water	03/05/20 11:30	03/09/20 10:10
60331129004	**FGD-04-030520**	Water	03/05/20 13:05	03/09/20 10:10
60331129005	**FGD-03-030520**	Water	03/05/20 14:15	03/09/20 10:10
60331129006	**FGD-02-030520**	Water	03/05/20 15:50	03/09/20 10:10
60331129007	**FGD-09-030620**	Water	03/06/20 08:15	03/09/20 10:10

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SAMPLE ANALYTE COUNT

Project: JEC FDG CCR
Pace Project No.: 60331129

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60331129001	**FGD-06-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129002	**FGD-01-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129003	**DUP-FGD-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129004	**FGD-04-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129005	**FGD-03-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129006	**FGD-02-030520**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60331129007	**FGD-09-030620**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331129

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Evergy Kansas Central, Inc.
Date: March 30, 2020

General Information:
7 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. 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:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331129

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Evergy Kansas Central, Inc.
Date: March 30, 2020

General Information:
7 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. 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:

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PROJECT NARRATIVE

Project: JEC FDG CCR
Pace Project No.: 60331129

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Evergy Kansas Central, Inc.
Date: March 30, 2020

General Information:
7 samples were analyzed for Total Radium Calculation by Pace Analytical Services Greensburg. 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.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-06-030520 **Lab ID: 60331129001** Collected: 03/05/20 09:35 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**6.24 ± 1.34 (0.479) C:NA T:87%**	pCi/L	03/26/20 14:49	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.00 ± 0.463 (0.785) C:78% T:82%**	pCi/L	03/25/20 11:31	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**7.24 ± 1.42 (0.785)**	pCi/L	03/30/20 13:35	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-01-030520 **Lab ID: 60331129002** Collected: 03/05/20 11:20 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.104 ± 0.287 (0.558) C:NA T:82%**	pCi/L	03/26/20 14:49	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.901 ± 0.470 (0.848) C:74% T:89%**	pCi/L	03/25/20 11:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.01 ± 0.551 (0.848)**	pCi/L	03/30/20 13:35	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: DUP-FGD-030520 **Lab ID: 60331129003** Collected: 03/05/20 11:30 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.308 ± 0.320 (0.477) C:NA T:94%**	pCi/L	03/25/20 12:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.409 ± 0.364 (0.738) C:75% T:88%**	pCi/L	03/25/20 11:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.717 ± 0.485 (0.738)**	pCi/L	03/27/20 13:49	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-04-030520 **Lab ID: 60331129004** Collected: 03/05/20 13:05 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.0990 ± 0.307 (0.594) C:NA T:99%**	pCi/L	03/25/20 12:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.569 ± 0.378 (0.722) C:75% T:88%**	pCi/L	03/25/20 11:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.668 ± 0.487 (0.722)**	pCi/L	03/27/20 13:49	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-03-030520 **Lab ID: 60331129005** Collected: 03/05/20 14:15 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.0557 ± 0.328 (0.730) C:NA T:92%**	pCi/L	03/25/20 12:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.533 ± 0.414 (0.820) C:69% T:86%**	pCi/L	03/26/20 17:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.533 ± 0.528 (0.820)**	pCi/L	03/27/20 13:49	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-02-030520 **Lab ID: 60331129006** Collected: 03/05/20 15:50 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.334 (0.707) C:NA T:88%**	pCi/L	03/25/20 12:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.181 ± 0.328 (0.718) C:74% T:92%**	pCi/L	03/26/20 17:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.181 ± 0.468 (0.718)**	pCi/L	03/27/20 13:49	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

Sample: FGD-09-030620 **Lab ID: 60331129007** Collected: 03/06/20 08:15 Received: 03/09/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.146 ± 0.254 (0.453) C:NA T:101%**	pCi/L	03/25/20 13:22	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.806 ± 0.445 (0.810) C:71% T:87%**	pCi/L	03/26/20 17:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.952 ± 0.512 (0.810)**	pCi/L	03/27/20 13:49	7440-14-4	

Pace Analytical Services, LLC
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QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

QC Batch: 387513
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60331129005, 60331129006, 60331129007

METHOD BLANK: 1877154 Matrix: Water
Associated Lab Samples: 60331129005, 60331129006, 60331129007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.817 ± 0.438 (0.785) C:73% T:83%	pCi/L	03/26/20 17:47	

Results presented on this page are in 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 FDG CCR
Pace Project No.: 60331129

QC Batch: 387505
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60331129003, 60331129004, 60331129005, 60331129006, 60331129007

METHOD BLANK: 1877146 Matrix: Water
Associated Lab Samples: 60331129003, 60331129004, 60331129005, 60331129006, 60331129007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0838 ± 0.329 (0.629) C:NA T:94%	pCi/L	03/25/20 12:44	

Results presented on this page are in 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 FDG CCR
Pace Project No.: 60331129

QC Batch: 387510
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60331129001, 60331129002, 60331129003, 60331129004

METHOD BLANK: 1877153 Matrix: Water
Associated Lab Samples: 60331129001, 60331129002, 60331129003, 60331129004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.101 ± 0.247 (0.553) C:77% T:90%	pCi/L	03/25/20 11:32	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC FDG CCR
Pace Project No.: 60331129

QC Batch: 387472
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60331129001, 60331129002

METHOD BLANK: 1876939 Matrix: Water
Associated Lab Samples: 60331129001, 60331129002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.235 ± 0.358 (0.819) C:NA T:83%	pCi/L	03/26/20 14:18	

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

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: JEC FDG CCR
Pace Project No.: 60331129

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FDG CCR
Pace Project No.: 60331129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60331129001	**FGD-06-030520**	EPA 903.1	387472		
60331129002	**FGD-01-030520**	EPA 903.1	387472		
60331129003	**DUP-FGD-030520**	EPA 903.1	387505		
60331129004	**FGD-04-030520**	EPA 903.1	387505		
60331129005	**FGD-03-030520**	EPA 903.1	387505		
60331129006	**FGD-02-030520**	EPA 903.1	387505		
60331129007	**FGD-09-030620**	EPA 903.1	387505		
60331129001	**FGD-06-030520**	EPA 904.0	387510		
60331129002	**FGD-01-030520**	EPA 904.0	387510		
60331129003	**DUP-FGD-030520**	EPA 904.0	387510		
60331129004	**FGD-04-030520**	EPA 904.0	387510		
60331129005	**FGD-03-030520**	EPA 904.0	387513		
60331129006	**FGD-02-030520**	EPA 904.0	387513		
60331129007	**FGD-09-030620**	EPA 904.0	387513		
60331129001	**FGD-06-030520**	Total Radium Calculation	390331		
60331129002	**FGD-01-030520**	Total Radium Calculation	390331		
60331129003	**DUP-FGD-030520**	Total Radium Calculation	390163		
60331129004	**FGD-04-030520**	Total Radium Calculation	390163		
60331129005	**FGD-03-030520**	Total Radium Calculation	390163		
60331129006	**FGD-02-030520**	Total Radium Calculation	390163		
60331129007	**FGD-09-030620**	Total Radium Calculation	390163		

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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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	EVERGY KANSAS CENTRAL, INC.	Report To:	Melissa Michels	Attention:	Accounts Payable
Address:	Jeffrey Energy Center (JEC)	Copy To:	Jared Morrison, Jake Humphrey, Laura Hines	Company Name:	EVERGY KANSAS CENTRAL, INC
	818 Kansas Ave, Topeka, KS 66612		JD Schlegel, Brandon Will, Sarah Hazelwood	Address:	SEE SECTION A
Email To:	melissa.michels@evergy.com	Purchase Order No.:	10JEC-0000047747	Pace Quote Reference:	
Phone:	(785) 575-8113 Fax:	Project Name:	JEC FDG CCR	Pace Project Manager:	Jasmine Amerin, 913-563-1403
Requested Due Date/TAT:	15 Day	Project Number:	129778-036	Pace Profile #:	9657, 1

REGULATORY AGENCY

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

Site Location STATE: KS

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Radium-226	Radium-228	Total Radium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	FGD-06-030520	WT		03/05	935				2			X							X	X	X		
2	FGD-01-030520				1120							X							X	X	X		
3	~~FGD~~ Dup-FGD-030520				1130							X							X	X	X		
4	FGD-04-030520				1305							X							X	X	X		
5	FGD-03-030520				1415							X							X	X	X		
6	FGD-02-030520			↓	1550							X							X	X	X		
7	FGD-09-030620	↓		03/06	815				↓			X							X	X	X		
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
				[signature] Pace	3/9/2020	10:10	NA	N	Y	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Eli Fredrickson					
SIGNATURE of SAMPLER:	Eli Fred	DATE Signed (MM/DD/YY): 03/06/20				

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: EVERGY Project #

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

Label

Tracking #: 1505 8760 4987

LIMS Login

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

Thermometer Used NA 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# 10D0241191 Date and Initials of person examining contents: MG 3/9/2020

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 MG 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: MG Date: 3/9/2020

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution: Need IRON

☐ **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
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Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-226
Analyst:	MK1
Date:	3/13/2020
Batch ID:	52841
Matrix:	DW

Method Blank Assessment	
MB Sample ID	1877146
MB concentration:	0.084
M/B Counting Uncertainty:	0.329
MB MDC:	0.629
MB Numerical Performance Indicator:	0.50
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS52841	LCSD52841
Count Date:	3/25/2020	
Spike I.D.:	18-039	
Spike Concentration (pCi/mL):	31.432	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.655	
Target Conc. (pCi/L, g, F):	4.802	
Uncertainty (Calculated):	0.226	
Result (pCi/L, g, F):	4.091	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.848	
Numerical Performance Indicator:	-1.59	
Percent Recovery:	85.19%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	73%	

Duplicate Sample Assessment		
Sample I.D.:	30353901001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	30353901001DUP	
Sample Result (pCi/L, g, F):	0.157	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.230	
Sample Duplicate Result (pCi/L, g, F):	0.234	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.324	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-0.376	30353901001
Duplicate RPD:	39.01%	30353901001DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	~~Fail***~~	
% RPD Limit:	~~32%~~	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	3/5/2020	
Sample I.D.	30353902001	
Sample MS I.D.	30353902001MS	
Sample MSD I.D.		
Spike I.D.:	18-039	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	31.433	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.659	
MS Target Conc.(pCi/L, g, F):	9.534	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.448	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.000	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.125	
Sample Matrix Spike Result:	8.863	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.210	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	-1.015	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	92.96%	
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%	

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

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

Comments:

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

Quality Control Sample Performance Assessment

Pace Analytical
www.pacelabs.com

Test:	Ra-226
Analyst:	MK1
Date:	3/13/2020
Batch ID:	52830
Matrix:	DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1876939
MB concentration:	-0.235
M/B Counting Uncertainty:	0.357
MB MDC:	0.819
MB Numerical Performance Indicator:	-1.29
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS52830	LCSD52830
Count Date:	3/30/2020	
Spike I.D.:	18-039	
Spike Concentration (pCi/mL):	31.432	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.661	
Target Conc. (pCi/L, g, F):	4.753	
Uncertainty (Calculated):	0.223	
Result (pCi/L, g, F):	4.679	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	1.155	
Numerical Performance Indicator:	-0.12	
Percent Recovery:	98.44%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	73%	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	3/4/2020	
Sample I.D.	30353726003	
Sample MS I.D.	30353726003MS	
Sample MSD I.D.		
Spike I.D.:	18-039	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	31.433	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.650	
MS Target Conc.(pCi/L, g, F):	9.666	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.454	
MSD Spike Uncertainty (calculated):		
Sample Result:	6.225	
Sample Result Counting Uncertainty (pCi/L, g, F):	1.096	
Sample Matrix Spike Result:	16.544	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.668	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	0.625	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	106.75%	
MSD Percent Recovery:		
MS Status vs Numerical Indicator:	N/A	
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:	Pass	
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:	136%	
MS/MSD Lower % Recovery Limits:	71%	

Duplicate Sample Assessment		
Sample I.D.:	30353726002	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	30353726002DUP	
Sample Result (pCi/L, g, F):	4.477	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.945	
Sample Duplicate Result (pCi/L, g, F):	3.939	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	1.021	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	0.757	30353726002
Duplicate RPD:	12.77%	30353726002DUP
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:

3-30-20

3/30/20

Quality Control Sample Performance Assessment

Pace Analytical™ www.pacelabs.com

Test:	Ra-228
Analyst:	VAL
Date:	3/17/2020
Worklist:	52844
Matrix:	WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1877153
MB concentration:	0.101
M/B 2 Sigma CSU:	0.247
MB MDC:	0.553
MB Numerical Performance Indicator:	0.80
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS52844	LCSD52844
Count Date:	3/25/2020	
Spike I.D.:	19-057	
Decay Corrected Spike Concentration (pCi/mL):	34.722	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.809	
Target Conc. (pCi/L, g, F):	4.292	
Uncertainty (Calculated):	0.309	
Result (pCi/L, g, F):	4.924	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.112	
Numerical Performance Indicator:	1.07	
Percent Recovery:	114.73%	
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:	3/3/2020	
Sample I.D.	30353662001	
Sample MS I.D.	30353662001MS	
Sample MSD I.D.		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	34.975	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.807	
MS Target Conc.(pCi/L, g, F):	8.670	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.624	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.253	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.338	
Sample Matrix Spike Result:	9.324	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	1.881	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	0.391	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	104.63%	
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.:	30353541001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	30353541001DUP	
Sample Result (pCi/L, g, F):	0.557	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.334	
Sample Duplicate Result (pCi/L, g, F):	1.033	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.429	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-1.714	30353541001
Duplicate RPD:	59.89%	30353541001DUP
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	36%	

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

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

Comments:

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-228
Analyst:	VAL
Date:	3/17/2020
Worklist:	52845
Matrix:	WT

Method Blank Assessment	
MB Sample ID	1877154
MB concentration:	0.817
M/B 2 Sigma CSU:	0.438
MB MDC:	0.785
MB Numerical Performance Indicator:	3.65
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS52845	LCSD52845
Count Date:	3/26/2020	
Spike I.D.:	19-057	
Decay Corrected Spike Concentration (pCi/mL):	34.707	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.805	
Target Conc. (pCi/L, g, F):	4.310	
Uncertainty (Calculated):	0.310	
Result (pCi/L, g, F):	4.455	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.060	
Numerical Performance Indicator:	0.26	
Percent Recovery:	103.35%	
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:	3/4/2020	
Sample I.D.	30353901001	
Sample MS I.D.	30353901001MS	
Sample MSD I.D.		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	34.965	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.812	
MS Target Conc.(pCi/L, g, F):	8.616	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.620	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.771	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.441	
Sample Matrix Spike Result:	10.424	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	2.073	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	0.920	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	112.03%	
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.:	30353895001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	30353895001DUP	
Sample Result (pCi/L, g, F):	0.259	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.404	
Sample Duplicate Result (pCi/L, g, F):	0.435	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.367	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-0.633	30353895001
Duplicate RPD:	50.78%	30353895001DUP
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	36%	

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

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

Comments:
*The method blank result is below the reporting limit for this analysis and is acceptable.

ATTACHMENT 1-2
June 2020 Sampling Event
Laboratory Analytical Report

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

June 29, 2020

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

RE: Project: JEC FGD CCR
Pace Project No.: 60339927

Dear Melissa Michels:

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

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

- Pace Analytical Services - Kansas City

Revised Report REV_1

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

Sincerely,

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

Enclosures

cc: Sarah Hazelwood, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Dustin Kadous, Evergy Kansas Central, Inc. Jeffrey Energy Center
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
JD Schlegel, Evergy, Inc.
Danielle Zinmaster, Haley & Aldrich

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: JEC FGD CCR
Pace Project No.: 60339927

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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SAMPLE SUMMARY

Project: JEC FGD CCR
Pace Project No.: 60339927

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60339927001	**FGD-01-061120**	Water	06/11/20 16:20	06/12/20 17:00
60339927002	**FGD-02-061120**	Water	06/11/20 14:20	06/12/20 17:00
60339927003	**FGD-03-061120**	Water	06/11/20 13:30	06/12/20 17:00
60339927004	**FGD-04-061120**	Water	06/11/20 12:35	06/12/20 17:00
60339927005	**FGD-06-061120**	Water	06/11/20 10:55	06/12/20 17:00
60339927006	**FGD-09-061120**	Water	06/11/20 15:15	06/12/20 17:00
60339927007	**FGD-DUP-061120**	Water	06/11/20 12:35	06/12/20 17:00

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SAMPLE ANALYTE COUNT

Project: JEC FGD CCR
Pace Project No.: 60339927

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60339927001	**FGD-01-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927002	**FGD-02-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927003	**FGD-03-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927004	**FGD-04-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927005	**FGD-06-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927006	**FGD-09-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K
60339927007	**FGD-DUP-061120**	EPA 200.7	TDS	4	PASI-K
		EPA 6010	JDE	1	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	LRS	1	PASI-K
		EPA 300.0	JWR	1	PASI-K

PASI-K = Pace Analytical Services - Kansas City

Pace Analytical Services, LLC
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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60339927

Date: June 29, 2020

Amended report revised to include thallium rerun results at a lowered dilution for sample FGD-06-061120.

Pace Analytical Services, LLC
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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60339927

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: June 29, 2020

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60339927

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Evergy Kansas Central, Inc.
Date: June 29, 2020

General Information:
7 samples were analyzed for EPA 6010 by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

Sample Preparation:
The samples were prepared in accordance with EPA 3010 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.
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(913)599-5665

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60339927

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: Evergy Kansas Central, Inc.
Date: June 29, 2020

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60339927

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: Evergy Kansas Central, Inc.
Date: June 29, 2020

General Information:
7 samples were analyzed for EPA 245.1 by Pace Analytical Services Kansas City. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

Sample Preparation:
The samples were prepared in accordance with EPA 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 FGD CCR
Pace Project No.: 60339927

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: June 29, 2020

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

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

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

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-01-061120 **Lab ID: 60339927001** Collected: 06/11/20 16:20 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.30**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:21	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:21	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:21	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:21	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**0.014**	mg/L	0.010	1	06/22/20 11:28	06/23/20 10:47	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:27	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7440-48-4	
Molybdenum, Total Recoverable	**0.0014**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:27	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:04	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.36**	mg/L	0.20	1		06/16/20 17:57	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-02-061120 **Lab ID: 60339927002** Collected: 06/11/20 14:20 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.063**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:24	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:24	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:24	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:24	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 10:55	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:37	7440-43-9	
Cobalt, Total Recoverable	**0.0017**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7440-48-4	
Molybdenum, Total Recoverable	**0.0038**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:37	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:07	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.35**	mg/L	0.20	1		06/16/20 18:13	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-03-061120 **Lab ID: 60339927003** Collected: 06/11/20 13:30 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.089**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:26	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:26	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:26	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:26	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**0.015**	mg/L	0.010	1	06/22/20 11:28	06/23/20 10:58	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7440-36-0	
Arsenic, Total Recoverable	**0.0011**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:39	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7440-48-4	
Molybdenum, Total Recoverable	**0.0060**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:39	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:09	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.35**	mg/L	0.20	1		06/16/20 18:28	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-04-061120 **Lab ID: 60339927004** Collected: 06/11/20 12:35 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.058**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:29	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:29	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:29	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:29	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**0.013**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:01	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:41	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7440-48-4	
Molybdenum, Total Recoverable	**0.0036**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:41	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:11	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.28**	mg/L	0.20	1		06/16/20 18:44	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-06-061120 **Lab ID: 60339927005** Collected: 06/11/20 10:55 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.017**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:31	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:31	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:31	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:31	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**0.45**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:04	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7440-36-0	
Arsenic, Total Recoverable	**0.0075**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:43	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7440-48-4	
Molybdenum, Total Recoverable	**0.011**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:43	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:13	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**1.1**	mg/L	0.20	1		06/16/20 19:32	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-09-061120 **Lab ID: 60339927006** Collected: 06/11/20 15:15 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.087**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:34	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:34	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:34	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:34	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:07	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7440-36-0	
Arsenic, Total Recoverable	**0.0016**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:45	7440-43-9	
Cobalt, Total Recoverable	**0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7440-48-4	
Molybdenum, Total Recoverable	**0.0097**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:45	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:18	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.50**	mg/L	0.20	1		06/16/20 19:48	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60339927

Sample: FGD-DUP-061120 **Lab ID: 60339927007** Collected: 06/11/20 12:35 Received: 06/12/20 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Total Recoverable	**0.059**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:39	7440-39-3	
Beryllium, Total Recoverable	**0.0010**	mg/L	0.0010	1	06/22/20 11:28	06/23/20 11:39	7440-41-7	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/22/20 11:28	06/23/20 11:39	7440-47-3	
Lead, Total Recoverable	**<0.010**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:39	7439-92-1	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Kansas City							
Lithium, Total Recoverable	**0.013**	mg/L	0.010	1	06/22/20 11:28	06/23/20 11:27	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/19/20 08:50	06/22/20 14:49	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7440-48-4	
Molybdenum, Total Recoverable	**0.0037**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/19/20 08:50	06/22/20 14:49	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Kansas City							
Mercury	**<0.20**	ug/L	0.20	1	06/19/20 08:03	06/22/20 11:25	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Fluoride	**0.28**	mg/L	0.20	1		06/16/20 20:04	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

QC Batch: 660997
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

METHOD BLANK: 2679564 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	06/22/20 10:39	

LABORATORY CONTROL SAMPLE: 2679565

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2679566 2679567

Parameter	Units	60339924001 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	4.7	4.6	94	91	70-130	3	20	

MATRIX SPIKE SAMPLE: 2679568

Parameter	Units	60339927005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	3.7	74	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

QC Batch: 661348
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

METHOD BLANK: 2681419 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	06/23/20 10:51	
Beryllium	mg/L	<0.0010	0.0010	06/23/20 10:51	
Chromium	mg/L	<0.0050	0.0050	06/23/20 10:51	
Lead	mg/L	<0.010	0.010	06/23/20 10:51	

LABORATORY CONTROL SAMPLE: 2681420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	102	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Chromium	mg/L	1	1.0	104	85-115	
Lead	mg/L	1	1.1	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2681421 2681422

Parameter	Units	60339924001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.027	1	1	1.0	0.98	98	95	70-130	4	20	
Beryllium	mg/L	<0.0010	1	1	0.98	0.95	98	95	70-130	4	20	
Chromium	mg/L	<0.0050	1	1	1.0	0.96	100	96	70-130	4	20	
Lead	mg/L	<0.010	1	1	1.0	0.96	101	96	70-130	4	20	

MATRIX SPIKE SAMPLE: 2681423

Parameter	Units	60339927006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.087	1	1.1	99	70-130	
Beryllium	mg/L	<0.0010	1	1.0	99	70-130	
Chromium	mg/L	<0.0050	1	1.0	101	70-130	
Lead	mg/L	<0.010	1	1.0	103	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

QC Batch: 661099
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

METHOD BLANK: 2680178 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	06/22/20 14:08	
Arsenic	mg/L	<0.0010	0.0010	06/22/20 14:08	
Cadmium	mg/L	<0.00050	0.00050	06/22/20 14:08	
Cobalt	mg/L	<0.0010	0.0010	06/22/20 14:08	
Molybdenum	mg/L	<0.0010	0.0010	06/22/20 14:08	
Selenium	mg/L	<0.0010	0.0010	06/22/20 14:08	
Thallium	mg/L	<0.0010	0.0010	06/22/20 14:08	

LABORATORY CONTROL SAMPLE: 2680179

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	0.040	100	85-115	
Cadmium	mg/L	0.04	0.039	99	85-115	
Cobalt	mg/L	0.04	0.041	103	85-115	
Molybdenum	mg/L	0.04	0.042	104	85-115	
Selenium	mg/L	0.04	0.039	98	85-115	
Thallium	mg/L	0.04	0.040	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2680180 2680181

Parameter	Units	60339924001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	<0.0010	0.04	0.04	0.039	0.039	97	98	70-130	0	20	
Arsenic	mg/L	<0.0010	0.04	0.04	0.041	0.041	100	101	70-130	1	20	
Cadmium	mg/L	<0.00050	0.04	0.04	0.037	0.037	92	92	70-130	0	20	
Cobalt	mg/L	<0.0010	0.04	0.04	0.039	0.039	96	97	70-130	1	20	
Molybdenum	mg/L	0.0084	0.04	0.04	0.052	0.052	109	109	70-130	1	20	
Selenium	mg/L	<0.0010	0.04	0.04	0.037	0.037	92	93	70-130	1	20	
Thallium	mg/L	<0.0010	0.04	0.04	0.037	0.037	92	93	70-130	1	20	

MATRIX SPIKE SAMPLE: 2680182

Parameter	Units	60339927006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	0.04	0.039	96	70-130	
Arsenic	mg/L	0.0016	0.04	0.041	100	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

MATRIX SPIKE SAMPLE: 2680182

Parameter	Units	60339927006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	<0.00050	0.04	0.037	92	70-130	
Cobalt	mg/L	0.0010	0.04	0.039	95	70-130	
Molybdenum	mg/L	0.0097	0.04	0.052	105	70-130	
Selenium	mg/L	<0.0010	0.04	0.038	94	70-130	
Thallium	mg/L	<0.0010	0.04	0.037	93	70-130	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

QC Batch: 661388
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

METHOD BLANK: 2681509 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lithium	mg/L	<0.010	0.010	06/23/20 10:23	

LABORATORY CONTROL SAMPLE: 2681510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lithium	mg/L	1	0.95	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2681511 2681512

Parameter	Units	60339924001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lithium	mg/L	0.011	1	1	1.0	0.97	99	96	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60339927

QC Batch: 660311 | Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 | Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

METHOD BLANK: 2677315 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	06/16/20 09:16	

METHOD BLANK: 2679415 Matrix: Water
Associated Lab Samples: 60339927001, 60339927002, 60339927003, 60339927004, 60339927005, 60339927006, 60339927007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	06/17/20 09:31	

LABORATORY CONTROL SAMPLE: 2677316

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.3	92	90-110	

LABORATORY CONTROL SAMPLE: 2679416

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.3	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2677317 2677318

Parameter	Units	60339973004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.17J	2.5	2.5	2.5	2.4	93	90	80-120	4	15	

MATRIX SPIKE SAMPLE: 2677319

Parameter	Units	60339924004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.63	2.5	2.9	92	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC FGD CCR
Pace Project No.: 60339927

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FGD CCR
Pace Project No.: 60339927

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60339927001	**FGD-01-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927002	**FGD-02-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927003	**FGD-03-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927004	**FGD-04-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927005	**FGD-06-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927006	**FGD-09-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927007	**FGD-DUP-061120**	EPA 200.7	661348	EPA 200.7	661465
60339927001	**FGD-01-061120**	EPA 3010	661388	EPA 6010	661464
60339927002	**FGD-02-061120**	EPA 3010	661388	EPA 6010	661464
60339927003	**FGD-03-061120**	EPA 3010	661388	EPA 6010	661464
60339927004	**FGD-04-061120**	EPA 3010	661388	EPA 6010	661464
60339927005	**FGD-06-061120**	EPA 3010	661388	EPA 6010	661464
60339927006	**FGD-09-061120**	EPA 3010	661388	EPA 6010	661464
60339927007	**FGD-DUP-061120**	EPA 3010	661388	EPA 6010	661464
60339927001	**FGD-01-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927002	**FGD-02-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927003	**FGD-03-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927004	**FGD-04-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927005	**FGD-06-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927006	**FGD-09-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927007	**FGD-DUP-061120**	EPA 200.8	661099	EPA 200.8	661164
60339927001	**FGD-01-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927002	**FGD-02-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927003	**FGD-03-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927004	**FGD-04-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927005	**FGD-06-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927006	**FGD-09-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927007	**FGD-DUP-061120**	EPA 245.1	660997	EPA 245.1	661118
60339927001	**FGD-01-061120**	EPA 300.0	660311		
60339927002	**FGD-02-061120**	EPA 300.0	660311		
60339927003	**FGD-03-061120**	EPA 300.0	660311		
60339927004	**FGD-04-061120**	EPA 300.0	660311		
60339927005	**FGD-06-061120**	EPA 300.0	660311		
60339927006	**FGD-09-061120**	EPA 300.0	660311		
60339927007	**FGD-DUP-061120**	EPA 300.0	660311		

Pace Analytical
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Sample Condition Upon Receipt

WO# : 60339927

60339927

Client Name: Evergy Kansas

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

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

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

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

Thermometer Used: T-301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.4 **Corr. Factor** -0.4 **Corrected** 1.0

Date and initials of person examining contents: HS 6.12.20

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# 603296	☑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: _____

CHAIN-OF-CUSTODY / Analytical Request Document

Pace Analytical
www.pacelabs.com

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

Page: 1 of 1

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.:	WSTR-10JEC47747
Project Name:	JEC FGD CCR
Project Number:	

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, 2

REGULATORY AGENCY

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

Site Location STATE: KS

Section D — Required Client Information

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	200.7 Total Metals*	200.8 Total Metals**	6010 Total Metals***	245.1 Mercury	300: F	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60339927
1	FGD-01-061120	WT	G	-	-	06/11/20	16:20		2	1		1							X	X	X	X	X		
2	FGD-02-061120	WT	G	-	-	06/11/20	14:20		2	1		1							X	X	X	X	X		
3	FGD-03-061120	WT	G	-	-	06/11/20	13:30		2	1		1							X	X	X	X	X		
4	FGD-04-061120	WT	G	-	-	06/11/20	12:35		2	1		1							X	X	X	X	X		
5	FGD-06-061120	WT	G	-	-	06/11/20	10:55		2	1		1							X	X	X	X	X		
6	FGD-09-061120	WT	G	-	-	06/11/20	15:15		2	1		1							X	X	X	X	X		
7	FGD-DUP-061120	WT	G	-	-	06/11/20	12:35		2	1		1							X	X	X	X	X		
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
200.7 Total Metals*: Ba, Be, Cr, Pb	Jason R. Franks/SCS	6/12/20	17:00	H [illegible] / Pace	6.12.20	1700	1.0	Y	N	Y
200.8 Total Metals**: As, Co, Cd, Mo, Se, Sb, Tl										
6010 Total Metals***: Li										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason R. Franks

SIGNATURE of SAMPLER: Jason R. Franks DATE Signed (MM/DD/YY): 6/12/20

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

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

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

July 08, 2020

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

RE: Project: JEC FGD CCR
Pace Project No.: 60340255

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Greensburg

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

Sincerely,

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

Enclosures

cc: Sarah Hazelwood, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Dustin Kadous, Evergy Kansas Central, Inc. Jeffrey Energy Center
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
JD Schlegel, Evergy, Inc.
Danielle Zinmaster, Haley & Aldrich

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: JEC FGD CCR
Pace Project No.: 60340255

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

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SAMPLE SUMMARY

Project: JEC FGD CCR
Pace Project No.: 60340255

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60340255001	**FGD-01-061120**	Water	06/11/20 16:20	06/16/20 09:40
60340255002	**FGD-02-061120**	Water	06/11/20 14:20	06/16/20 09:40
60340255003	**FGD-03-061120**	Water	06/11/20 13:30	06/16/20 09:40
60340255004	**FGD-04-061120**	Water	06/11/20 12:35	06/16/20 09:40
60340255005	**FGD-06-061120**	Water	06/11/20 10:55	06/16/20 09:40
60340255006	**FGD-09-061120**	Water	06/11/20 15:15	06/16/20 09:40
60340255007	**FGD-DUP-061120**	Water	06/11/20 12:35	06/16/20 09:40

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SAMPLE ANALYTE COUNT

Project: JEC FGD CCR
Pace Project No.: 60340255

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60340255001	**FGD-01-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255002	**FGD-02-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255003	**FGD-03-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255004	**FGD-04-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255005	**FGD-06-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255006	**FGD-09-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60340255007	**FGD-DUP-061120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60340255

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Evergy Kansas Central, Inc.
Date: July 08, 2020

General Information:
7 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. 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
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(913)599-5665

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60340255

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Evergy Kansas Central, Inc.
Date: July 08, 2020

General Information:
7 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. 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 FGD CCR
Pace Project No.: 60340255

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Evergy Kansas Central, Inc.
Date: July 08, 2020

General Information:
7 samples were analyzed for Total Radium Calculation by Pace Analytical Services Greensburg. 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.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-01-061120 **Lab ID: 60340255001** Collected: 06/11/20 16:20 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.495 ± 0.518 (0.811) C:NA T:84%**	pCi/L	07/02/20 11:48	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0790 ± 0.384 (0.877) C:70% T:78%**	pCi/L	07/02/20 14:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.574 ± 0.645 (0.877)**	pCi/L	07/06/20 11:00	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 FGD CCR
Pace Project No.: 60340255

Sample: FGD-02-061120 **Lab ID: 60340255002** Collected: 06/11/20 14:20 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.0730 ± 0.656 (1.32) C:NA T:75%**	pCi/L	07/02/20 11:48	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.231 ± 0.488 (1.08) C:69% T:70%**	pCi/L	07/02/20 14:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.231 ± 0.818 (1.32)**	pCi/L	07/06/20 11:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-03-061120 **Lab ID: 60340255003** Collected: 06/11/20 13:30 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.0632 ± 0.372 (0.829) C:NA T:96%**	pCi/L	07/02/20 12:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.358 ± 0.477 (1.02) C:70% T:75%**	pCi/L	07/02/20 14:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.358 ± 0.605 (1.02)**	pCi/L	07/06/20 11:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-04-061120 **Lab ID: 60340255004** Collected: 06/11/20 12:35 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.429 ± 0.368 (0.498) C:NA T:98%**	pCi/L	07/02/20 12:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.488 ± 0.435 (0.882) C:69% T:81%**	pCi/L	07/02/20 14:32	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.917 ± 0.570 (0.882)**	pCi/L	07/06/20 11:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-06-061120 **Lab ID: 60340255005** Collected: 06/11/20 10:55 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**5.19 ± 1.32 (0.496) C:NA T:88%**	pCi/L	07/02/20 12:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**2.15 ± 0.722 (0.992) C:71% T:72%**	pCi/L	07/02/20 14:33	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**7.34 ± 1.50 (0.992)**	pCi/L	07/06/20 11:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-09-061120 **Lab ID: 60340255006** Collected: 06/11/20 15:15 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.126 ± 0.495 (0.947) C:NA T:83%**	pCi/L	07/02/20 12:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0687 ± 0.502 (1.15) C:69% T:66%**	pCi/L	07/02/20 14:33	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.195 ± 0.705 (1.15)**	pCi/L	07/06/20 11:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

Sample: FGD-DUP-061120 **Lab ID: 60340255007** Collected: 06/11/20 12:35 Received: 06/16/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.341 ± 0.317 (0.418) C:NA T:92%**	pCi/L	07/02/20 12:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0433 ± 0.418 (0.962) C:69% T:81%**	pCi/L	07/02/20 14:33	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.384 ± 0.525 (0.962)**	pCi/L	07/06/20 11:00	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

QC Batch: 401500 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60340255001, 60340255002, 60340255003, 60340255004, 60340255005, 60340255006, 60340255007

METHOD BLANK: 1943788 Matrix: Water
Associated Lab Samples: 60340255001, 60340255002, 60340255003, 60340255004, 60340255005, 60340255006, 60340255007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.370 ± 0.360 (0.736) C:68% T:90%	pCi/L	07/02/20 14:31	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC FGD CCR
Pace Project No.: 60340255

QC Batch: 401499
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 60340255001, 60340255002, 60340255003, 60340255004, 60340255005, 60340255006, 60340255007

METHOD BLANK: 1943787 Matrix: Water
Associated Lab Samples: 60340255001, 60340255002, 60340255003, 60340255004, 60340255005, 60340255006, 60340255007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0979 ± 0.333 (0.735) C:NA T:89%	pCi/L	07/02/20 11:48	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: JEC FGD CCR
Pace Project No.: 60340255

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FGD CCR
Pace Project No.: 60340255

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60340255001	**FGD-01-061120**	EPA 903.1	401499		
60340255002	**FGD-02-061120**	EPA 903.1	401499		
60340255003	**FGD-03-061120**	EPA 903.1	401499		
60340255004	**FGD-04-061120**	EPA 903.1	401499		
60340255005	**FGD-06-061120**	EPA 903.1	401499		
60340255006	**FGD-09-061120**	EPA 903.1	401499		
60340255007	**FGD-DUP-061120**	EPA 903.1	401499		
60340255001	**FGD-01-061120**	EPA 904.0	401500		
60340255002	**FGD-02-061120**	EPA 904.0	401500		
60340255003	**FGD-03-061120**	EPA 904.0	401500		
60340255004	**FGD-04-061120**	EPA 904.0	401500		
60340255005	**FGD-06-061120**	EPA 904.0	401500		
60340255006	**FGD-09-061120**	EPA 904.0	401500		
60340255007	**FGD-DUP-061120**	EPA 904.0	401500		
60340255001	**FGD-01-061120**	Total Radium Calculation	403763		
60340255002	**FGD-02-061120**	Total Radium Calculation	403763		
60340255003	**FGD-03-061120**	Total Radium Calculation	403763		
60340255004	**FGD-04-061120**	Total Radium Calculation	403763		
60340255005	**FGD-06-061120**	Total Radium Calculation	403763		
60340255006	**FGD-09-061120**	Total Radium Calculation	403763		
60340255007	**FGD-DUP-061120**	Total Radium Calculation	403763		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — Required Client Information:

Company:	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:	15 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.:	WSTR-10JEC47747
Project Name:	JEC FGD CCR
Project Number:	

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, 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	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Radium-226	Radium-228	Total Radium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	FGD-01-061120	WT	G	-	-	06/11/20	16:20		2			2							X	X	X		
2	FGD-02-061120	WT	G	-	-	06/11/20	14:20		2			2							X	X	X		
3	FGD-03-061120	WT	G	-	-	06/11/20	13:30		2			2							X	X	X		
4	FGD-04-061120	WT	G	-	-	06/11/20	12:35		2			2							X	X	X		
5	FGD-06-061120	WT	G	-	-	06/11/20	10:55		2			2							X	X	X		
6	FGD-09-061120	WT	G	-	-	06/11/20	15:15		2			2							X	X	X		
7	FGD-DUP-061120	WT	G	-	-	06/11/20	12:35		2			2							X	X	X		
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
RETURN TO PACE PA	Jason R. Franks / SCS	6/15/20	16:00		6-16-20	9:40	N/A	N	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason R. Franks

SIGNATURE of SAMPLER: Jason R. Franks DATE Signed (MM/DD/YY): 6/12/20

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Evergy Kansas Project #

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

Label

Tracking #: 1505 8766 5372

LIMS Login

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

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

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

Temp should be above freezing to 6°C

pH paper Lot# ICD2192 Date and Initials of person examining contents: DL 6-16-20

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: MT	✓			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. DMR
All containers meet method preservation requirements.	✓			Initial when completed DM 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: DM Date: 6-16-20

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:	6/25/2020
Batch ID:	54714
Matrix:	DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1943787
MB concentration:	-0.098
M/B Counting Uncertainty:	0.332
MB MDC:	0.735
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
	LCS54714	LCSD54714
Count Date:	7/2/2020	
Spike I.D.:	18-039	
Spike Concentration (pCi/mL):	31.428	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.651	
Target Conc. (pCi/L, g, F):	4.826	
Uncertainty (Calculated):	0.227	
Result (pCi/L, g, F):	5.316	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	1.053	
Numerical Performance Indicator:	0.89	
Percent Recovery:	110.15%	
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:	6/16/2020	
Sample I.D.	35556724001	
Sample MS I.D.	35556724001MS	
Sample MSD I.D.		
Spike I.D.:	18-039	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	31.429	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.656	
MS Target Conc.(pCi/L, g, F):	9.581	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.450	
MSD Spike Uncertainty (calculated):		
Sample Result:	0.797	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.524	
Sample Matrix Spike Result:	12.211	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	1.662	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:	1.996	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	119.13%	
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.:	35556720001	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	35556720001DUP	
Sample Result (pCi/L, g, F):	0.287	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.405	
Sample Duplicate Result (pCi/L, g, F):	0.517	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.507	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-0.697	35556720001
Duplicate RPD:	57.40%	35556720001DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	32%	

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

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

Comments:

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

Quality Control Sample Performance Assessment

Test: Ra-228
Analyst: VAL
Date: 6/26/2020
Worklist: 54715
Matrix: WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1943788
MB concentration:	0.370
M/B 2 Sigma CSU:	0.360
MB MDC:	0.736
MB Numerical Performance Indicator:	2.01
MB Status vs Numerical Indicator:	Warning
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS54715	LCSD54715
Count Date:	7/2/2020	7/2/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	33.604	33.604
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.807	0.802
Target Conc. (pCi/L, g, F):	4.164	4.193
Uncertainty (Calculated):	0.300	0.302
Result (pCi/L, g, F):	5.312	4.746
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.235	1.108
Numerical Performance Indicator:	1.77	0.94
Percent Recovery:	127.56%	113.19%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	6/17/2020	
Sample I.D.	30368472001	
Sample MS I.D.	30368472001MS	
Sample MSD I.D.		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	33.774	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.807	
MS Target Conc.(pCi/L, g, F):	8.372	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):	0.603	
MSD Spike Uncertainty (calculated):		
Sample Result:	1.366	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.542	
Sample Matrix Spike Result:	9.436	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	1.949	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:	-0.281	
MSD Numerical Performance Indicator:		
MS Percent Recovery:	96.39%	
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.:	LCS54715	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	LCSD54715	
Sample Result (pCi/L, g, F):	5.312	
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.235	
Sample Duplicate Result (pCi/L, g, F):	4.746	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.108	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	0.669	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	11.94%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

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

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

Comments:

ATTACHMENT 1-3
September 2020 Sampling Event
Laboratory Analytical Report

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

September 25, 2020

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

RE: Project: JEC FGD CCR
Pace Project No.: 60348654

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory between September 15, 2020 and September 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

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

Sincerely,

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

Enclosures

cc: Sarah Hazelwood, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Dustin Kadous, Evergy Kansas Central, Inc. Jeffrey Energy Center
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Melanie Satanek, Haley & Aldrich, Inc.
JD Schlegel, Evergy, Inc.
Danielle Zinmaster, Haley & Aldrich

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CERTIFICATIONS

Project: JEC FGD CCR
Pace Project No.: 60348654

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

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SAMPLE SUMMARY

Project: JEC FGD CCR
Pace Project No.: 60348654

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60348654001	**FGD-01-091420**	Water	09/14/20 14:27	09/15/20 17:20
60348654002	**FGD-06-091420**	Water	09/14/20 14:55	09/16/20 17:40
60348654003	**FGD-02-091420**	Water	09/14/20 16:18	09/15/20 17:20
60348654004	**FGD-03-091420**	Water	09/14/20 16:37	09/16/20 17:40
60348654005	**FGD-04-091420**	Water	09/14/20 15:53	09/16/20 17:40
60348654006	**FGD-09-091420**	Water	09/14/20 15:38	09/15/20 17:20
60348654007	**DUP-FGD-091420**	Water	09/14/20 08:00	09/15/20 17:20

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SAMPLE ANALYTE COUNT

Project: JEC FGD CCR
Pace Project No.: 60348654

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60348654001	**FGD-01-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60348654002	**FGD-06-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
60348654003	**FGD-02-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60348654004	**FGD-03-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60348654005	**FGD-04-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60348654006	**FGD-09-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K
60348654007	**DUP-FGD-091420**	EPA 200.7	TDS	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	LDB, MJK	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60348654

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: September 25, 2020

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

QC Batch: 678442

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60348450001,60348453005

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

- MS (Lab ID: 2743247)
  - Calcium
- MSD (Lab ID: 2743246)
  - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60348654

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Evergy Kansas Central, Inc.
Date: September 25, 2020

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60348654

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: Evergy Kansas Central, Inc.
Date: September 25, 2020

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

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

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- DUP-FGD-091420 (Lab ID: 60348654007)
- FGD-01-091420 (Lab ID: 60348654001)
- FGD-02-091420 (Lab ID: 60348654003)
- FGD-03-091420 (Lab ID: 60348654004)
- FGD-04-091420 (Lab ID: 60348654005)
- FGD-06-091420 (Lab ID: 60348654002)
- FGD-09-091420 (Lab ID: 60348654006)

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60348654

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: September 25, 2020

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Analyte Comments:

QC Batch: 677780

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

- MS (Lab ID: 2740987)
  - Sulfate

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

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-01-091420 **Lab ID: 60348654001** Collected: 09/14/20 14:27 Received: 09/15/20 17:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.13**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:23	7440-42-8	
Calcium, Total Recoverable	**99.2**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:23	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**521**	mg/L	10.0	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		09/19/20 10:06		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**50.2**	mg/L	10.0	10		09/22/20 02:02	16887-00-6	
Fluoride	**0.41**	mg/L	0.20	1		09/19/20 14:19	16984-48-8	
Sulfate	**106**	mg/L	10.0	10		09/22/20 02:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-06-091420 **Lab ID: 60348654002** Collected: 09/14/20 14:55 Received: 09/16/20 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**10.9**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:33	7440-42-8	
Calcium, Total Recoverable	**586**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:33	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**8450**	mg/L	167	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		09/19/20 10:07		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**2440**	mg/L	200	200		09/22/20 04:20	16887-00-6	
Fluoride	**1.6**	mg/L	0.20	1		09/22/20 03:50	16984-48-8	
Sulfate	**3030**	mg/L	200	200		09/22/20 04:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-02-091420 **Lab ID: 60348654003** Collected: 09/14/20 16:18 Received: 09/15/20 17:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.23**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:25	7440-42-8	
Calcium, Total Recoverable	**236**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:25	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1280**	mg/L	13.3	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		09/19/20 10:14		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**85.1**	mg/L	10.0	10		09/22/20 02:18	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		09/19/20 14:48	16984-48-8	
Sulfate	**528**	mg/L	50.0	50		09/19/20 15:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-03-091420 **Lab ID: 60348654004** Collected: 09/14/20 16:37 Received: 09/16/20 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.18**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:36	7440-42-8	
Calcium, Total Recoverable	**190**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:36	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1210**	mg/L	13.3	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		09/19/20 10:18		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**132**	mg/L	50.0	50		09/19/20 19:14	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	1		09/22/20 04:51	16984-48-8	
Sulfate	**479**	mg/L	50.0	50		09/19/20 19:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-04-091420 **Lab ID: 60348654005** Collected: 09/14/20 15:53 Received: 09/16/20 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.40**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:38	7440-42-8	
Calcium, Total Recoverable	**322**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:38	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1760**	mg/L	20.0	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		09/19/20 10:13		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**166**	mg/L	50.0	50		09/19/20 19:43	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	1		09/22/20 05:06	16984-48-8	
Sulfate	**690**	mg/L	50.0	50		09/19/20 19:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: FGD-09-091420 **Lab ID: 60348654006** Collected: 09/14/20 15:38 Received: 09/15/20 17:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.51**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:28	7440-42-8	
Calcium, Total Recoverable	**129**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:28	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**708**	mg/L	10.0	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		09/19/20 10:11		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**31.2**	mg/L	5.0	5		09/22/20 19:43	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	1		09/22/20 02:33	16984-48-8	
Sulfate	**271**	mg/L	50.0	50		09/19/20 16:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60348654

Sample: DUP-FGD-091420 **Lab ID: 60348654007** Collected: 09/14/20 08:00 Received: 09/15/20 17:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Boron, Total Recoverable	**0.52**	mg/L	0.10	1	09/23/20 14:11	09/24/20 16:30	7440-42-8	
Calcium, Total Recoverable	**129**	mg/L	0.20	1	09/23/20 14:11	09/24/20 16:30	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**702**	mg/L	10.0	1		09/21/20 16:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		09/19/20 09:52		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**34.8**	mg/L	5.0	5		09/22/20 03:34	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	1		09/22/20 02:48	16984-48-8	
Sulfate	**263**	mg/L	50.0	50		09/19/20 16:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60348654

QC Batch: 678442
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

METHOD BLANK: 2743243 Matrix: Water
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	09/24/20 15:29	
Calcium	mg/L	<0.20	0.20	09/24/20 15:29	

LABORATORY CONTROL SAMPLE: 2743244

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	1.0	103	85-115	
Calcium	mg/L	10	10.1	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743245 2743246

Parameter	Units	60348450001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.40	1	1	1.5	1.4	108	102	70-130	4	20	
Calcium	mg/L	171	10	10	180	172	92	12	70-130	5	20	M1

MATRIX SPIKE SAMPLE: 2743247

Parameter	Units	60348453005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	4.1	1	5.0	88	70-130	
Calcium	mg/L	544	10	538	-63	70-130	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60348654

QC Batch: 678006 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

METHOD BLANK: 2741926 Matrix: Water
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/21/20 16:09	

LABORATORY CONTROL SAMPLE: 2741927

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

SAMPLE DUPLICATE: 2741928

Parameter	Units	60348652001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2630	2660	1	10	

SAMPLE DUPLICATE: 2741936

Parameter	Units	60348712001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	17500	16200	8	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60348654

QC Batch: 677705
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

SAMPLE DUPLICATE: 2740237

Parameter	Units	60348588006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.2	8.2	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60348654

QC Batch: 677780
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

METHOD BLANK: 2740983 Matrix: Water
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/19/20 07:43	
Fluoride	mg/L	<0.20	0.20	09/19/20 07:43	
Sulfate	mg/L	<1.0	1.0	09/19/20 07:43	

METHOD BLANK: 2741913 Matrix: Water
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/21/20 23:13	
Fluoride	mg/L	<0.20	0.20	09/21/20 23:13	
Sulfate	mg/L	<1.0	1.0	09/21/20 23:13	

METHOD BLANK: 2742421 Matrix: Water
Associated Lab Samples: 60348654001, 60348654002, 60348654003, 60348654004, 60348654005, 60348654006, 60348654007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/22/20 09:19	
Fluoride	mg/L	<0.20	0.20	09/22/20 09:19	
Sulfate	mg/L	<1.0	1.0	09/22/20 09:19	

LABORATORY CONTROL SAMPLE: 2740984

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

LABORATORY CONTROL SAMPLE: 2741914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.3	106	90-110	
Fluoride	mg/L	2.5	2.6	102	90-110	
Sulfate	mg/L	5	5.3	107	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60348654

LABORATORY CONTROL SAMPLE: 2742422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	90	90-110	
Fluoride	mg/L	2.5	2.4	94	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2740985 2740986

Parameter	Units	60348553001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	19.8	25	25	45.5	45.2	103	102	80-120	1	15	
Fluoride	mg/L	3.2	12.5	12.5	15.7	15.4	100	97	80-120	2	15	
Sulfate	mg/L	947	500	500	1500	1500	111	111	80-120	0	15	

MATRIX SPIKE SAMPLE: 2740987

Parameter	Units	60348654002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2440	1000	3620	118	80-120	
Fluoride	mg/L	1.6	2.5	4.1	99	80-120	
Sulfate	mg/L	3030	1000	4160	113	80-120	E

Results presented on this page are in 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 FGD CCR
Pace Project No.: 60348654

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FGD CCR
Pace Project No.: 60348654

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60348654001	**FGD-01-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654002	**FGD-06-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654003	**FGD-02-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654004	**FGD-03-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654005	**FGD-04-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654006	**FGD-09-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654007	**DUP-FGD-091420**	EPA 200.7	678442	EPA 200.7	678676
60348654001	**FGD-01-091420**	SM 2540C	678006		
60348654002	**FGD-06-091420**	SM 2540C	678006		
60348654003	**FGD-02-091420**	SM 2540C	678006		
60348654004	**FGD-03-091420**	SM 2540C	678006		
60348654005	**FGD-04-091420**	SM 2540C	678006		
60348654006	**FGD-09-091420**	SM 2540C	678006		
60348654007	**DUP-FGD-091420**	SM 2540C	678006		
60348654001	**FGD-01-091420**	SM 4500-H+B	677705		
60348654002	**FGD-06-091420**	SM 4500-H+B	677705		
60348654003	**FGD-02-091420**	SM 4500-H+B	677705		
60348654004	**FGD-03-091420**	SM 4500-H+B	677705		
60348654005	**FGD-04-091420**	SM 4500-H+B	677705		
60348654006	**FGD-09-091420**	SM 4500-H+B	677705		
60348654007	**DUP-FGD-091420**	SM 4500-H+B	677705		
60348654001	**FGD-01-091420**	EPA 300.0	677780		
60348654002	**FGD-06-091420**	EPA 300.0	677780		
60348654003	**FGD-02-091420**	EPA 300.0	677780		
60348654004	**FGD-03-091420**	EPA 300.0	677780		
60348654005	**FGD-04-091420**	EPA 300.0	677780		
60348654006	**FGD-09-091420**	EPA 300.0	677780		
60348654007	**DUP-FGD-091420**	EPA 300.0	677780		

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Sample Condition Upon Receipt

WO# : 60348654

60348654

Client Name: Evergy Kansas Central Inc

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 DRY ICE

Thermometer Used: T099 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 0.1 Corr. Factor +0.2 Corrected 0.3

Date and initials of person examining contents: 09/16/20 MLK

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	Received FGD-03, FGD-06 & FGD-04 on 09/16/20 09-16-20
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) LOT# 1003173	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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Sample Condition Upon Receipt

Client Name: Evergy Kansas Central, Inc.

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

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

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

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

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

Cooler Temperature (°C): **As-read** 5,5.2 **Corr. Factor** +0.5 **Corrected** 20,5.7

Date and initials of person examining contents: 04/16/20 MCK

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	Did not receive FDG-DIG
Correct containers used:	☑Yes ☐No ☐N/A	FGD-03 & FDG-04. Received
Pace containers used:	☑Yes ☐No ☐N/A	containers for a Duplicate
Containers intact:	☑Yes ☐No ☐N/A	that were sampled 4/14/20 @
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	1538
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☑No ☐N/A	Containers labeled "FGD." instead
Samples contain multiple phases? Matrix: WW	☐Yes ☑No ☐N/A	of FDG
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) 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: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — **Required** Client Information:

Company:	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, Samantha Kaney, Danielle Zinm
Copy To:	Jared Morrison, Jake Humphrey, Laura Hines
	JD Schlegel, Brandon Will, Sarah Hazelwood
Purchase Order No.:	10JEC-0000047747
Project Name:	JEC FGD CCR
Project Number:	

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, 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

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	Y/N	Analysis Test: 200.7 Total Metals*	4500 H+B	300: Cl, F, SO4	2540C TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	FDG-01-091420	WT	G	-	-	09/14/20	14:27		3	2		1						X	X	X	X		60348654
2	FGD-06-091420	WT	G	-	-	09/14/20	14:55		3	2		1						X	X	X	X		
3	FGD-02-091420	WT	G	-	-	09/14/20	16:18		3	2		1						X	X	X	X		
4	FGD-03-091420	WT	G	-	-	09/14/20	16:37		3	2		1						X	X	X	X		
5	FGD-04-091420	WT	G	-	-	09/14/20	15:53		3	2		1						X	X	X	X		
6	FGD-09-091420	WT	G	-	-	09/14/20	15:38		3	2		1						X	X	X	X		
7	DUP-FGD-091420	WT	G	-	-	09/14/20	-		3	2		1						X	X	X	X		
8																							
9																							
10																							
11																							
12																							

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
200.7 Total Metals*: B, Ca	Jason R. Franks / SCS	9/15/20	17:00	Miller/Pace	9/15/20	1720

SAMPLE CONDITIONS			
2.0 / 5.1	Y	Y	Y
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason R. Franks

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/14/20

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

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CHAIN-OF-CUSTODY / Analytical Request Document

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

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, Samantha Kaney, Danielle Zinm
Copy To:	Jared Morrison, Jake Humphrey, Laura Hines
	JD Schlegel, Brandon Will, Sarah Hazelwood
Purchase Order No.:	10JEC-0000047747
Project Name:	JEC FGD CCR
Project Number:	

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, 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	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	4500 H+B	300: Cl, F, SO4	2540C TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	FGD-01-091420	WT	G	-	-	09/14/20	14:27		3	2		1						X	X	X	X		60348654
2	FGD-06-091420	WT	G	-	-	09/14/20	14:55		3	2		1						X	X	X	X		
3	FGD-02-091420	WT	G	-	-	09/14/20	16:18		3	2		1						X	X	X	X		
4	FGD-03-091420	WT	G	-	-	09/14/20	16:37		3	2		1						X	X	X	X		
5	FGD-04-091420	WT	G	-	-	09/14/20	15:53		3	2		1						X	X	X	X		
6	FGD-09-091420	WT	G	-	-	09/14/20	15:38		3	2		1						X	X	X	X		
7	DUP-FGD-091420	WT	G	-	-	09/14/20	15:38		3	2		1						X	X	X	X		
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	Jason R. Franks / SCS	9/15/20	17:00	E Brown / PEC	9.16.20	1140	03	4	4	4

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason R. Franks

SIGNATURE of SAMPLER: Jason R. Franks

DATE Signed (MM/DD/YY): 9/14/20

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 Analyses

ATTACHMENT 2-1
September 2019 Statistical Analyses

HALEY & ALDRICH, INC.
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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 Assessment Monitoring Data Statistical Evaluation
Completed January 21, 2020
Jeffrey Energy Center
Flue Gas Desulfurization Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) §§ 257.93 and 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the **September 2019** semi-annual assessment monitoring groundwater sampling event for the Jeffrey Energy Center (JEC) Flue Gas Desulfurization (FGD) Landfill. This semi-annual assessment monitoring groundwater sampling event was completed on **September 16, 2019**, with laboratory results received and accepted on **October 23, 2019**.

The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant increase (SSI) above background values and if one or more of the constituents have been detected at statistically significant levels (SSL) above the groundwater protection standard (GWPS) consistent with the requirements of the Rule. GWPSs for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration.

Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residuals (CCR) unit (40 CFR § 257.93(f) (1-4)). The statistical method used for these evaluations, tolerance limit (TL), was certified by Haley & Aldrich, Inc. on January 14, 2019. The TL method, as determined applicable for this sampling event, was used to evaluate potential SSLs above background. Background levels for each constituent listed in Appendix IV were computed as upper

tolerance limits (UTL), and a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling event from each compliance well was compared to the corresponding background UTL to determine if a SSL existed.

STATISTICAL EVALUATION

An interwell evaluation was used to determine the SSIs. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data. Because the CCR unit has transitioned into assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) semi-annual assessment monitoring data.

The TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs 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 TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using a background dataset for all Appendix IV constituents that were detected in the annual assessment monitoring sample event using parametric TLs. If an Appendix IV constituent concentration from the **September 2019** sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent will be used to evaluate if a SSI is present. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

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

BACKGROUND DISTRIBUTIONS

In 2018 and 2019, Evergy made preparations to expand the FGD Landfill. Upgradient (MW-FGD-6) and downgradient (MW-FGD-9) monitoring wells, installed March 2 and March 1, 2018, respectively, were added to the monitor well system in support of an ongoing expansion of the FGD Landfill. The Groundwater Monitoring Systems Certification was revised in December 2019 to reflect the inclusion of

the additional monitoring wells to the FGD Landfill CCR management unit. Baseline sampling of the additional monitoring wells was completed in September 2018 and the monitoring wells were included in the sampling of the system beginning with the September 2019 semi-annual monitoring event. The baseline sampling data for MW-FGD-6 and MW-FGD-9 for 2018 and 2019 are provided in the 2019 Annual Groundwater Monitoring and Corrective Action Report dated January 2020.

The groundwater analytical results for each sampling event from the background sample locations (MW-FGD-1 and MW-FGD-6) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL 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 IV DOWNGRADIENT STATISTICAL COMPARISONS

Sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the **September 2019** semi-annual assessment monitoring event were compared to their respective background UTLs and GWPSs (Table I). With the addition of MW-FGD-6 as a background sample location, arsenic was included as a detected Appendix IV constituent for the FGD Landfill. A sample concentration greater than the background UTL is considered to represent a SSI. A sample concentration greater than the GWPS is considered to represent a SSL. The results of the groundwater assessment monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation on groundwater sampling data collected in September 2019, no SSLs above GWPS occurred at the JEC FGD Landfill.**

Enclosures:
Table I – Summary of Semi-Annual Assessment Monitoring Statistical Evaluation

TABLE

TABLE I

SUMMARY OF SEMI-ANNUAL ASSESSMENT GROUNDWATER MONITORING STATISTICAL EVALUATION

SEPTEMBER 2019 SAMPLING EVENT

JEFFREY ENERGY CENTER FLUE GAS DESULFURIZATION LANDFILL

ST. MARYS, KANSAS

										MCL Comparison							Interwell Analysis		Groundwater Protection Standard	
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well	September 2019 Concentration (mg/L)	Background Limits[1] (UTL) mg/L	SSI	GWPS (Higher of MCL/RSL or Upper Tolerance Limit) mg/L	SSL
CCR Appendix-IV: Arsenic, Total (mg/L)																				
MW-FGD-1 (upgradient)	0/12	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.017		0.017	
MW-FGD-6 (upgradient)	11/11	0%	-	0.019	0.00002884	0.00537	0.4302	0.010	mg/L	7	0	No	No	Stable		0.0047				
MW-FGD-2	0/12	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-3	0/12	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-4	0/12	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-9	11/11	0%	-	0.0039	5.509E-07	0.0007422	0.2482	0.010	mg/L	0	0	No	No	Stable	Normal	0.0025		No		No
CCR Appendix-IV: Barium, Total (mg/L)																				
MW-FGD-1 (upgradient)	13/13	0%	-	0.31	0.0002667	0.01633	0.05631	2	mg/L	0	0	No	No	Stable	Non-parametric	0.27	0.310		2	
MW-FGD-6 (upgradient)	11/11	0%	-	0.047	0.0000658	0.008112	0.2797	2	mg/L	0	0	No	No	Decreasing		0.019				
MW-FGD-2	13/13	0%	-	0.097	0.00006633	0.008145	0.1044	2	mg/L	0	0	No	No	Stable	Normal	0.068		No		No
MW-FGD-3	13/13	0%	-	0.23	0.00203	0.04505	0.3272	2	mg/L	0	0	No	No	Decreasing	Normal	0.082		No		No
MW-FGD-4	13/13	0%	-	0.064	0.00003526	0.005938	0.1092	2	mg/L	0	0	No	No	Decreasing	Normal	0.045		No		No
MW-FGD-9	11/11	0%	-	0.092	0.00003325	0.005767	0.06835	2	mg/L	0	0	Yes	No	Stable	Normal	0.090		No		No
CCR Appendix-IV: Cobalt, Total (mg/L)																				
MW-FGD-1 (upgradient)	1/13	92%	0.001-0.001	0.001	0	0	0	0.006	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.0087		0.0087	
MW-FGD-6 (upgradient)	11/11	0%	-	0.0087	0.000006332	0.002516	0.8439	0.006	mg/L	2	0	Yes	No	Decreasing		0.0017				
MW-FGD-2	13/13	0%	-	0.002	1.383E-07	0.0003719	0.248	0.006	mg/L	0	0	No	No	Stable	Normal	0.0020		No		No
MW-FGD-3	0/13	100%	0.001-0.001		0	0	0	0.006	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-4	0/13	100%	0.001-0.001		0	0	0	0.006	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-9	8/11	27%	0.001-0.001	0.0018	5.255E-08	0.0002292	0.197	0.006	mg/L	0	0	No	No	Stable	Normal	0.0018		No		No
CCR Appendix-IV: Fluoride (mg/L)																				
MW-FGD-1 (upgradient)	14/14	0%	-	0.44	0.001873	0.04327	0.1257	4.0	mg/L	0	0	No	No	Increasing	Non-parametric	0.25	1.800		4.0	
MW-FGD-6 (upgradient)	12/12	0%	-	3.4	0.5482	0.7404	0.5229	4.0	mg/L	0	0	No	No	Stable		0.91				
MW-FGD-2	13/14	7%	0.2-0.2	0.41	0.002655	0.05153	0.1457	4.0	mg/L	0	0	No	No	Stable	Normal	<0.20		No		No
MW-FGD-3	13/14	7%	0.2-0.2	0.53	0.005746	0.0758	0.2521	4.0	mg/L	0	0	Yes	No	Stable	Non-parametric	<0.20		No		No
MW-FGD-4	13/14	7%	0.2-0.2	0.43	0.003244	0.05696	0.1668	4.0	mg/L	0	0	No	No	Stable	Normal	<0.20		No		No
MW-FGD-9	11/11	0%	-	0.56	0.00164	0.0405	0.07941	4.0	mg/L	0	0	No	No	Stable	Normal	0.42		No		No
CCR Appendix-IV: Lithium, Total (mg/L)																				
MW-FGD-1 (upgradient)	12/13	8%	0.01-0.01	0.016	0.00000341	0.001847	0.1312	0.040	mg/L	0	0	No	No	Stable	Non-parametric	<0.010	0.450		0.450	
MW-FGD-6 (upgradient)	11/11	0%	-	0.45	0.005729	0.07569	0.2097	0.040	mg/L	11	0	No	No	Increasing		0.39				
MW-FGD-2	3/13	77%	0.01-0.01	0.012	0.000000359	0.0005991	0.05856	0.040	mg/L	0	0	No	No	NT	Non-parametric	<0.010		No		No
MW-FGD-3	13/13	0%	-	0.019	0.000004474	0.002115	0.1425	0.040	mg/L	0	0	No	No	Stable	Normal	0.016		No		No
MW-FGD-4	11/13	15%	0.01-0.02	0.017	0.000006667	0.002582	0.1844	0.040	mg/L	0	0	No	No	Stable	Normal	0.013		No		No
MW-FGD-9	2/11	82%	0.01-0.01	0.014	0.000002618	0.001618	0.1508	0.040	mg/L	0	0	No	No	Stable	Non-parametric	<0.010		No		No
CCR Appendix-IV: Molybdenum, Total (mg/L)																				
MW-FGD-1 (upgradient)	13/13	0%	-	0.0083	0.000003712	0.001927	1.018	0.100	mg/L	0	0	NA	NA	NA	Non-parametric	0.0013	0.520		0.520	
MW-FGD-6 (upgradient)	11/11	0%	-	0.52	0.0219	0.148	1.15	0.100	mg/L	4	0	Yes	No	Decreasing		0.036				
MW-FGD-2	13/13	0%	-	0.0047	1.069E-07	0.000327	0.08021	0.100	mg/L	0	0	No	No	Stable	Normal	0.0035		No		No
MW-FGD-3	13/13	0%	-	0.0071	2.477E-07	0.0004977	0.08502	0.100	mg/L	0	0	No	No	Decreasing	Normal	0.0052		No		No
MW-FGD-4	13/13	0%	-	0.0046	7.936E-08	0.0002817	0.07324	0.100	mg/L	0	0	No	No	Decreasing	Normal	0.0035		No		No
MW-FGD-9	11/11	0%	-	0.016	0.000003996	0.001999	0.1749	0.100	mg/L	0	0	No	No	Decrease	Normal	0.0095		No		No
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																				
MW-FGD-1 (upgradient)	13/13	0%	-	1.8	0.2489	0.4989	1.093	5	pCi/L	0	0	No	No	Stable	Normal	1.80	4.92		5	
MW-FGD-6 (upgradient)	12/12	0%	-	9.02	11.53	3.395	1.118	5	pCi/L	3	0	Yes	No	Stable		6.68				
MW-FGD-2	12/13	8%	1.18-1.18	1.06	0.1618	0.4023	0.8546	5	pCi/L	0	0	No	No	Stable	Normal	1.180		No		No
MW-FGD-3	12/13	8%	0.403-0.403	1.2	0.171	0.4136	0.8596	5	pCi/L	0	0	No	No	Stable	Normal	0.403		No		No
MW-FGD-4	11/13	15%	0.443-1.11	1.13	0.08094	0.2845	0.4483	5	pCi/L	0	0	No	No	Stable	Normal	1.11		No		No
MW-FGD-9	11/11	0%	-	0.989	0.0229	0.1513	0.195	5	pCi/L	0	0	No	No	Stable	Normal	0.786		No		No
CCR Appendix-IV: Selenium, Total (mg/L)																				
MW-FGD-1 (upgradient)	0/12	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.0046		0.05	
MW-FGD-6 (upgradient)	1/11	91%	0.001-0.001	0.0046	0.000001178	0.001085	0.8178	0.05	mg/L	0	0	Yes	No	Stable		<0.0010				
MW-FGD-2	5/12	58%	0.001-0.001	0.0016	4.629E-08	0.0002151	0.1941	0.05	mg/L	0	0	No	No	NA	Non-parametric	0.0015		No		No
MW-FGD-3	0/12	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-4	0/12	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	NA	<0.0010		No		No
MW-FGD-9	0/11	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010		No		No

Notes and Abbreviations:

[1] Based on background data collected from 08/24/2016 through 03/27/2019

CCR = coal combustion residuals

GWPS = Groundwater Protection Standard

MCL = maximum contaminant level

mg/L = milligrams per Liter

NA = not analyzed

pCi/L = picoCuries per Liter

RSL = regional screening level

SSI = statistically significant increase

SSL = statistically significant level

UTL = upper tolerance limits

ATTACHMENT 2-2
March 2020 Statistical Analyses

HALEY & ALDRICH, INC.
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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: March 2020 Semi-annual Groundwater Assessment Monitoring Data Statistical Evaluation
Completed July 14, 2020
Jeffrey Energy Center
Flue Gas Desulfurization Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) §§ 257.93 and 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the **March 2020** semi-annual assessment monitoring groundwater sampling event for the Jeffrey Energy Center (JEC) Flue Gas Desulfurization (FGD) Landfill. This semi-annual assessment monitoring groundwater sampling event was completed on **March 5 and 6, 2020**, with laboratory results received and accepted on **April 20, 2020**.

The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant increase (SSI) above background values and if one or more of the constituents have been detected at statistically significant levels (SSL) above the groundwater protection standard (GWPS) consistent with the requirements of the Rule. GWPSs for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, 40 CFR § 257.95(h)(2) levels (from regional screening levels), or background concentration.

Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residuals (CCR) unit (40 CFR § 257.93(f) (1-4)). The statistical method used for these evaluations, tolerance limit (TL), was certified by Haley & Aldrich, Inc. on January 14, 2019. The TL method, as determined applicable for this sampling event, was used to evaluate potential SSLs above background. Background levels for each constituent listed in Appendix IV were computed as upper

tolerance limits (UTL), and a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling event from each compliance well was compared to the corresponding background UTL to determine if a SSL existed.

STATISTICAL EVALUATION

An interwell evaluation was used to determine the SSIs. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data. Because the CCR unit has transitioned into assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) semi-annual assessment monitoring data.

The TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs 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 TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using a background dataset for all Appendix IV constituents that were detected in the annual assessment monitoring sample event in June 2019 using parametric TLs. If an Appendix IV constituent concentration from the **March 2020** sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent will be used to evaluate if a SSI is present. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

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

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations (MW-FGD-1 and MW-FGD-6) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL 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 2020.**

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

Sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the **March 2020** semi-annual assessment monitoring event were compared to their respective background UTLs and GWPSs (Table I). A sample concentration greater than the background UTL is considered to represent a SSI. A sample concentration greater than the GWPS is considered to represent a SSL. The results of the groundwater assessment monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation on groundwater sampling data collected in March 2020, no SSLs above GWPS occurred at the JEC FGD Landfill.**

Enclosures:
Table I – Summary of Semi-Annual Assessment Monitoring Statistical Evaluation

TABLE

TABLE I

SUMMARY OF SEMI-ANNUAL ASSESSMENT GROUNDWATER MONITORING STATISTICAL EVALUATION

MARCH 2020 SAMPLING EVENT

JEFFREY ENERGY CENTER FLUE GAS DESULFURIZATION LANDFILL

ST. MARYS, KANSAS

										MCL Comparison							Interwell Analysis		Groundwater Protection Standard	
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL or CFR § 257.95(h)(2)*	Report Result Unit	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well	March 2020 Concentration (mg/L)	Background Limits[1] (UTL) mg/L	SSI	GWPS (Higher of MCL/ 40 CFR § 257.95(h)(2) or UTL)	SSL
CCR Appendix-IV: Arsenic, Total (mg/L)																				
MW-FGD-1 (upgradient)	0/13	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.019		0.019	
MW-FGD-6 (upgradient)	12/12	0%	-	0.019	0.00002837	0.005326	0.4417	0.010	mg/L	7	0	No	No	Stable		0.0074				
MW-FGD-2	0/13	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-3	0/13	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-4	0/13	100%	0.001-0.001		0	0	0	0.010	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-9	12/12	0%	-	0.0039	6.62E-07	0.0008137	0.283	0.010	mg/L	0	0	No	No	Stable	Normal	0.0016		No		No
CCR Appendix-IV: Barium, Total (mg/L)																				
MW-FGD-1 (upgradient)	14/14	0%	-	0.31	0.0002533	0.01592	0.05502	2	mg/L	0	0	No	No	Stable	Non-parametric	0.28	0.310		2	
MW-FGD-6 (upgradient)	12/12	0%	-	0.047	0.0000739	0.008597	0.3079	2	mg/L	0	0	No	No	Decreasing		0.016				
MW-FGD-2	14/14	0%	-	0.097	0.00008187	0.009048	0.1178	2	mg/L	0	0	Yes	No	Stable	Normal	0.061		No		No
MW-FGD-3	14/14	0%	-	0.23	0.002163	0.04651	0.3493	2	mg/L	0	0	No	No	Decreasing	Normal	0.074		No		No
MW-FGD-4	14/14	0%	-	0.064	0.00003255	0.005706	0.105	2	mg/L	0	0	No	No	Decreasing	Normal	0.054		No		No
MW-FGD-9	12/12	0%	-	0.092	0.00003117	0.005583	0.0664	2	mg/L	0	0	Yes	No	Stable	Normal	0.081		No		No
CCR Appendix-IV: Cobalt, Total (mg/L)																				
MW-FGD-1 (upgradient)	1/14	93%	0.001-0.001	0.001	0	0	0	0.006	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.0087		0.0087	
MW-FGD-6 (upgradient)	11/12	8%	0.001-0.001	0.0087	6.083E-06	0.002466	0.8757	0.006	mg/L	2	0	Yes	No	Decreasing		< 0.0010				
MW-FGD-2	14/14	0%	-	0.002	1.455E-07	0.0003815	0.2484	0.006	mg/L	0	0	No	No	Increasing	Normal	0.0020		No		No
MW-FGD-3	0/14	100%	0.001-0.001		0	0	0	0.006	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-4	0/14	100%	0.001-0.001		0	0	0	0.006	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-9	8/12	33%	0.001-0.001	0.0018	0.00000005	0.0002236	0.1944	0.006	mg/L	0	0	No	No	Stable	Non-parametric	< 0.0010		No		No
CCR Appendix-IV: Fluoride (mg/L)																				
MW-FGD-1 (upgradient)	15/15	0%	-	0.44	0.001817	0.04263	0.1246	4.0	mg/L	0	0	Yes	No	Stable	Non-parametric	0.31	3.400		4.0	
MW-FGD-6 (upgradient)	13/13	0%	-	3.4	0.5061	0.7114	0.5084	4.0	mg/L	0	0	Yes	No	Stable		1.2				
MW-FGD-2	14/15	7%	0.2-0.2	0.41	0.003655	0.06046	0.1754	4.0	mg/L	0	0	No	No	Stable	Normal	0.22		No		No
MW-FGD-3	13/15	13%	0.2-0.2	0.53	0.006011	0.07753	0.2637	4.0	mg/L	0	0	Yes	No	Stable	Non-parametric	< 0.20		No		No
MW-FGD-4	14/15	7%	0.2-0.2	0.43	0.003021	0.05496	0.1613	4.0	mg/L	0	0	Yes	No	Stable	Normal	0.33		No		No
MW-FGD-9	12/12	0%	-	0.56	0.001791	0.04232	0.0838	4.0	mg/L	0	0	No	No	Stable	Normal	0.45		No		No
CCR Appendix-IV: Lithium, Total (mg/L)																				
MW-FGD-1 (upgradient)	13/14	7%	0.01-0.01	0.016	3.209E-06	0.001791	0.1267	0.040	mg/L	0	0	No	No	Stable	Non-parametric	0.015	0.450		0.450	
MW-FGD-6 (upgradient)	12/12	0%	-	0.45	0.00587	0.07661	0.208	0.040	mg/L	12	0	No	No	Increasing		0.45				
MW-FGD-2	4/14	71%	0.01-0.01	0.012	5.549E-07	0.0007449	0.07193	0.040	mg/L	0	0	No	No	NT	Non-parametric	0.012		No		No
MW-FGD-3	14/14	0%	-	0.02	6.027E-06	0.002455	0.1614	0.040	mg/L	0	0	No	No	Stable	Normal	0.02		No		No
MW-FGD-4	12/14	14%	0.01-0.02	0.019	0.00000794	0.002818	0.1963	0.040	mg/L	0	0	No	No	Stable	Normal	0.019		No		No
MW-FGD-9	2/12	83%	0.01-0.01	0.014	2.424E-06	0.001557	0.146	0.040	mg/L	0	0	Yes	No	Stable	Non-parametric	< 0.010		No		No
CCR Appendix-IV: Molybdenum, Total (mg/L)																				
MW-FGD-1 (upgradient)	14/14	0%	-	0.0083	3.452E-06	0.001858	1.004	0.100	mg/L	0	0	Yes	No	Stable	Non-parametric	0.0013	0.520		0.520	
MW-FGD-6 (upgradient)	12/12	0%	-	0.52	0.021	0.1449	1.217	0.100	mg/L	4	0	Yes	No	Decreasing		0.014				
MW-FGD-2	14/14	0%	-	0.0047	1.042E-07	0.0003228	0.07955	0.100	mg/L	0	0	No	No	Stable	Normal	0.0038		No		No
MW-FGD-3	14/14	0%	-	0.0071	2.303E-07	0.0004799	0.08214	0.100	mg/L	0	0	Yes	No	Decreasing	Normal	0.0057		No		No
MW-FGD-4	14/14	0%	-	0.0046	8.181E-08	0.000286	0.07485	0.100	mg/L	0	0	Yes	No	Decreasing	Normal	0.0035		No		No
MW-FGD-9	12/12	0%	-	0.016	4.046E-06	0.002012	0.1789	0.100	mg/L	0	0	Yes	No	Decrease	Normal	0.0092		No		No
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																				
MW-FGD-1 (upgradient)	14/14	0%	-	1.8	0.2521	0.5021	0.5198	5	pCi/L	0	0	No	No	Stable	Normal	1.01	9.02		9.02	
MW-FGD-6 (upgradient)	13/13	0%	-	9.02	3.785	1.946	0.3492	5	pCi/L	7	0	No	No	Increasing		7.24				
MW-FGD-2	12/14	14%	0.181-1.18	1.1412	0.09281	0.3046	0.4209	5	pCi/L	0	0	No	No	Stable	Normal	0.181		No		No
MW-FGD-3	12/14	14%	0.403-0.533	1.532	0.1366	0.3696	0.3927	5	pCi/L	0	0	No	No	Stable	Normal	0.533		No		No
MW-FGD-4	11/14	21%	0.443-1.11	1.525	0.1048	0.3238	0.3574	5	pCi/L	0	0	No	No	Stable	Normal	0.668		No		No
MW-FGD-9	12/12	0%	-	4.34	1.265	1.125	0.9525	5	pCi/L	0	0	Yes	No	Stable	Normal	0.952		No		No
CCR Appendix-IV: Selenium, Total (mg/L)																				
MW-FGD-1 (upgradient)	0/13	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	Non-parametric	<0.0010	0.0046		0.05	
MW-FGD-6 (upgradient)	1/12	92%	0.001-0.001	0.0046	0.00000108	0.001039	0.7994	0.05	mg/L	0	0	Yes	No	Stable		< 0.0010				
MW-FGD-2	5/13	62%	0.001-0.001	0.0016	4.333E-08	0.0002082	0.1892	0.05	mg/L	0	0	Yes	No	NT	Non-parametric	< 0.0010		No		No
MW-FGD-3	0/13	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-4	0/13	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	NA	< 0.0010		No		No
MW-FGD-9	0/12	100%	0.001-0.001		0	0	0	0.05	mg/L	0	0	NA	NA	NA	Non-parametric	< 0.0010		No		No

Notes and Abbreviations:

[1] Based on background data collected from 08/24/2016 through 03/05/2020

** Values obtained from U.S. Environmental Protection Agency Federal CCR Rule Title 40 Code of Federal Regulations (CFR) §§ 257.95(h)(2)*

CCR = coal combustion residuals

GWPS = Groundwater Protection Standard

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not analyzed

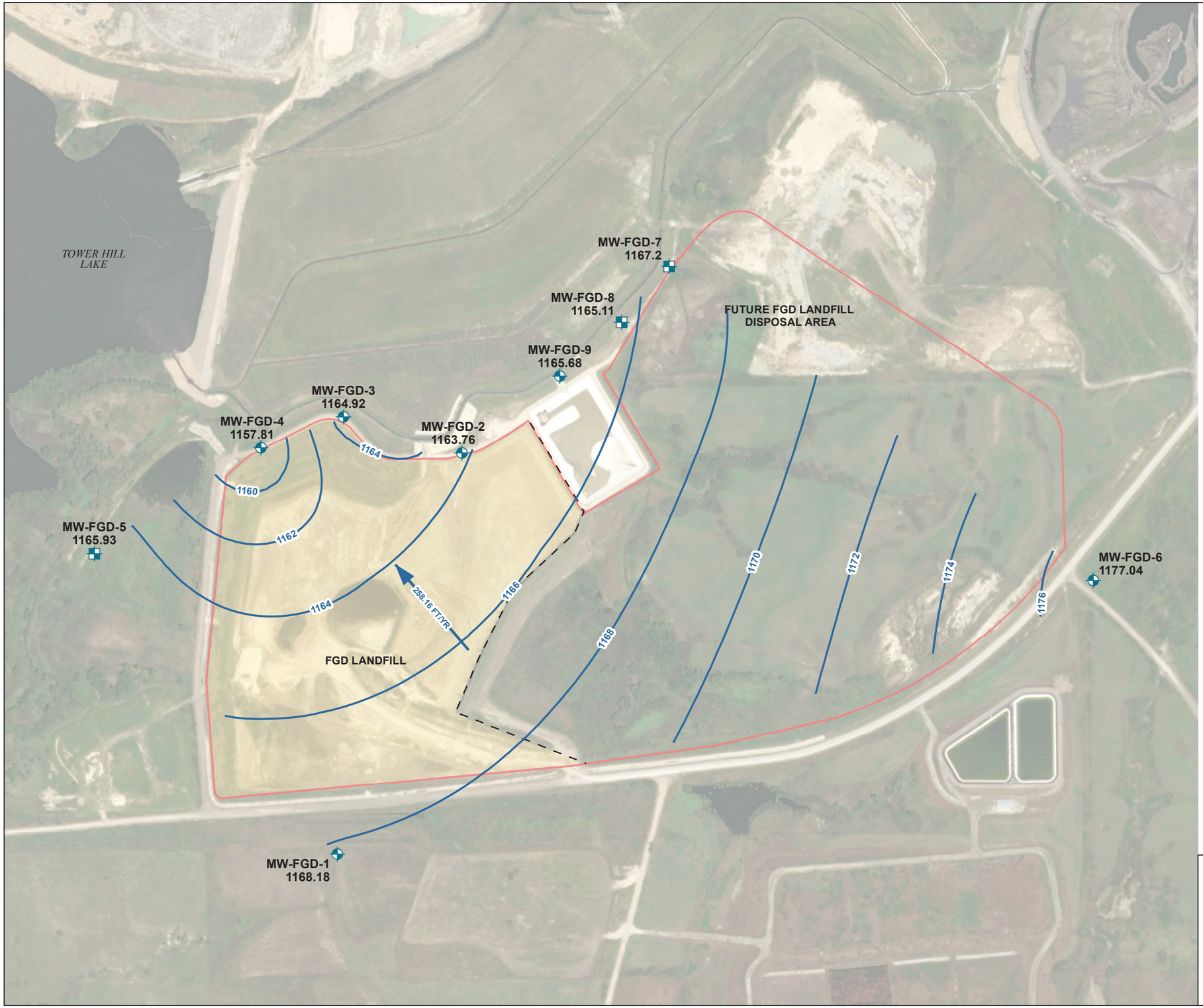
pCi/L = picoCuries per liter

SSI = statistically significant increase

SSL = statistically significant level

UTL = upper tolerance limits

ATTACHMENT 3
Groundwater Potentiometric Maps



LEGEND

MW-FGD-6
1168.88 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)

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

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 03 MARCH 2020.

3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.

4. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 03 MARCH 2020 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 450 900
SCALE IN FEET

HALEY ALDRICH

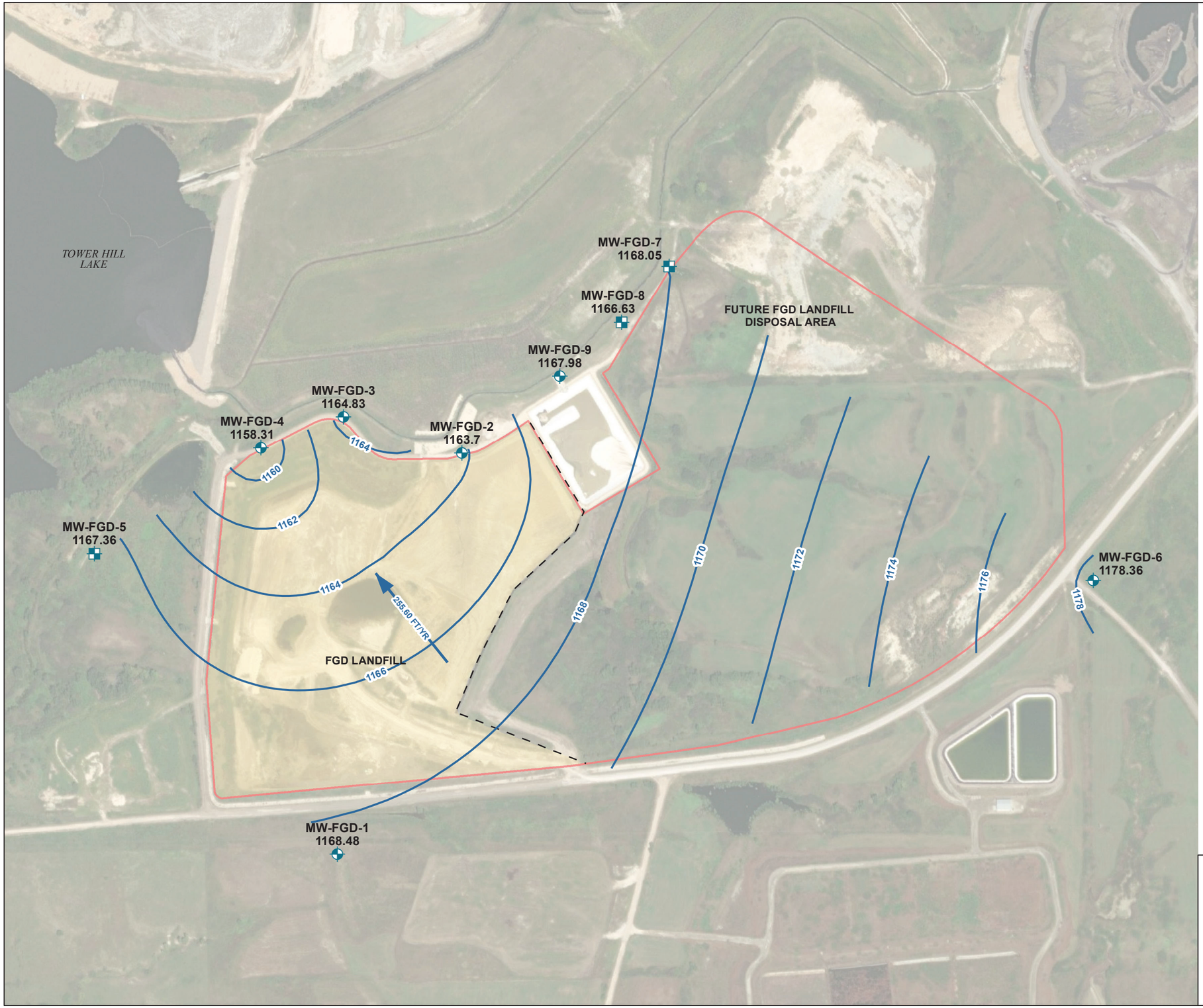
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MARCH 3, 2020

evergy

NOVEMBER 2022

FIGURE 2



LEGEND

MW-FGD-6 1168.88 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), JUNE 2020

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

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

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

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 11 JUNE 2020.

3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.

4. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 11 JUNE 2020 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

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SCALE IN FEET

HALEY ALDRICH

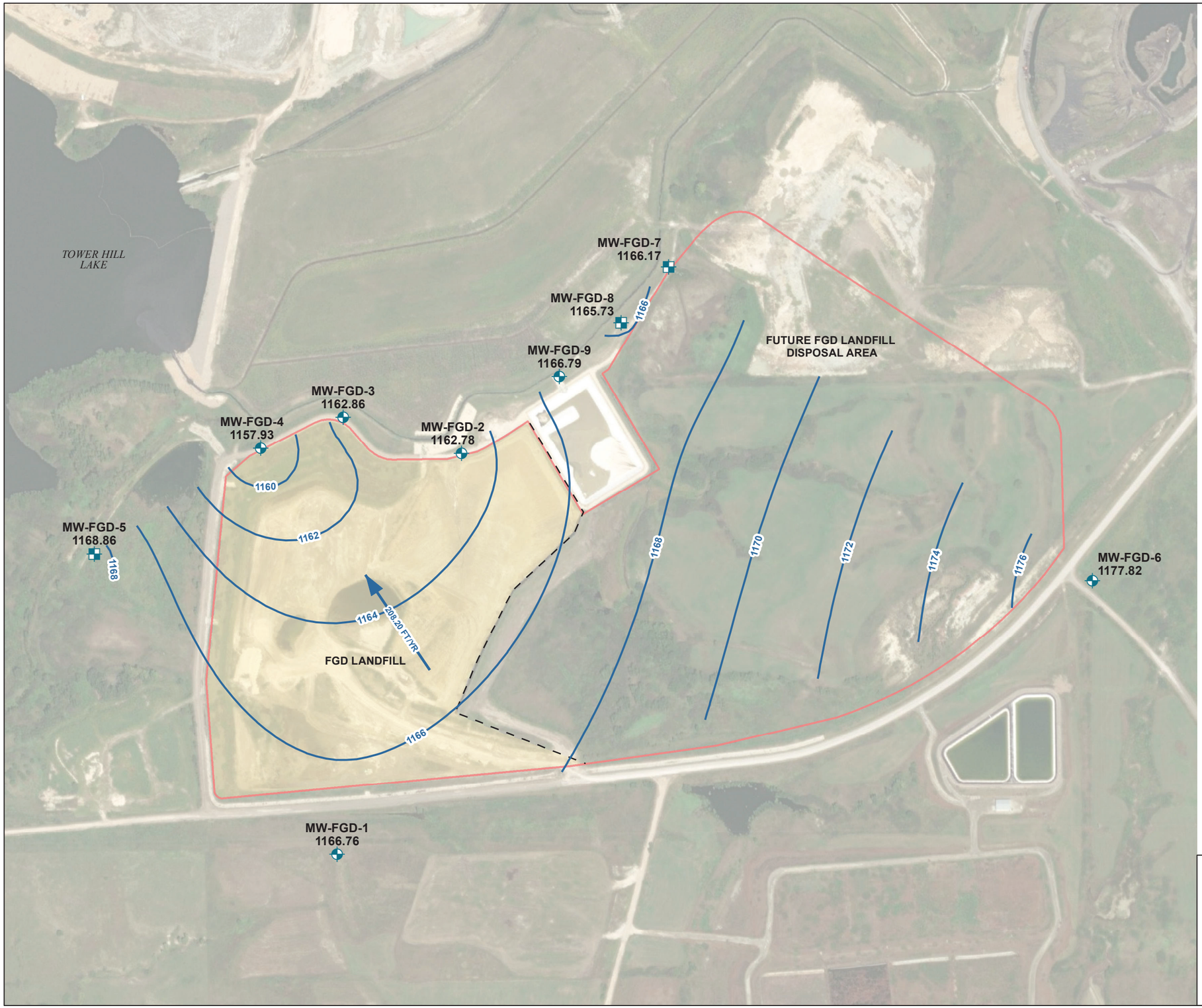
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP JUNE 11, 2020

evergy

NOVEMBER 2022

FIGURE 3



LEGEND

MW-FGD-6
1168.88 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2020

MONITORING WELL

PIEZOMETER OBSERVATION ONLY

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

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

FGD LANDFILL

FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 SEPTEMBER 2020.

3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.

4. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 14 SEPTEMBER 2020 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

N

0 450 900
SCALE IN FEET

HALEY ALDRICH

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

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 14, 2020

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NOVEMBER 2022

FIGURE 4