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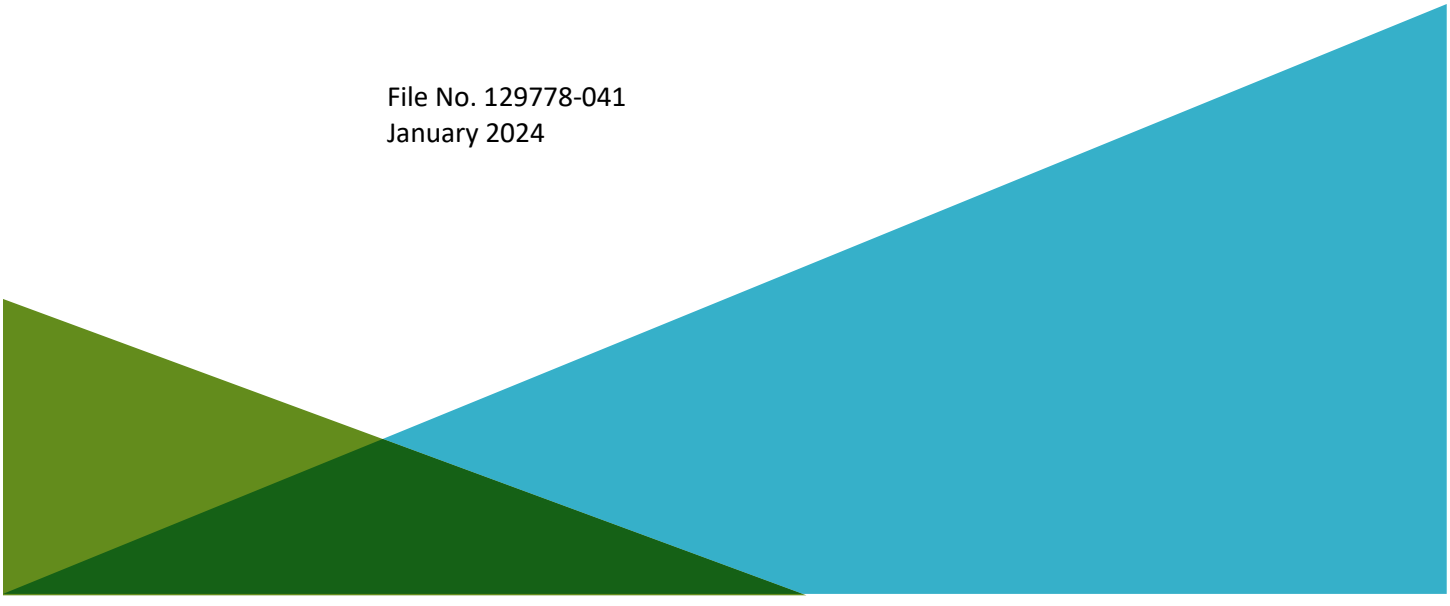
2023 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
FLUE GAS DESULFURIZATION LANDFILL
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

by
Haley & Aldrich, Inc.
Cleveland, Ohio

for
Evergy Kansas Central, Inc.
Topeka, Kansas

File No. 129778-041
January 2024



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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 (2023) and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2023 Annual Groundwater Monitoring and Corrective Action Report for the FGD Landfill is, to the best of my knowledge, accurate and complete.

Signed: _____
Professional Geologist

Print Name:	Mark Nicholls
Kansas License No.:	Professional Geologist No. 881
Title:	Principal Consultant
Company:	Haley & Aldrich, Inc.

1. Introduction

This 2023 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 Title 40 Code of Federal Regulations (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 (2023) 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, 2023), the FGD Landfill was operating under a detection 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, 2023), 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) – Statistically Significant Increase Constituents

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

No statistically significant increases (SSI) over background were identified during the previous calendar year (2023). The statistical evaluation reports for semi-annual assessment monitoring sampling events from September 2022 and March 2023 were completed in February 2023 and July 2023, respectively, and are included in Attachment 1.

1.1.3.2 40 CFR § 257.90(e)(6)(iii)(b) – Initiation of Assessment Monitoring

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;

The FGD Landfill remains in detection monitoring, and no Appendix IV constituents were collected or analyzed in 2023. Therefore, no statistically significant levels above the groundwater protection standard were identified 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 2023 for this unit. The FGD Landfill remained in detection monitoring during 2023.

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 2023; 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 2023 for this unit. The FGD Landfill remained in detection monitoring during 2023.

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 remains in detection monitoring, 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 2023.

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 is provided in this report. This Annual Report documents the applicable groundwater-related activities completed in the calendar year 2023.

2.2.1 Status of the Groundwater Monitoring Program

The FGD Landfill remained in the detection monitoring program during 2023.

2.2.2 Key Actions Completed

The 2022 Annual Groundwater Monitoring and Corrective Action Report was completed in January 2023. Statistical evaluation was completed in February 2023 on analytical data from the September 2022 semi-annual detection monitoring sampling event. Semi-annual detection monitoring sampling events were completed in March and September of 2023. Statistical evaluation was completed in July 2023 on analytical data from the March 2023 semi-annual detection monitoring sampling event.

Statistical evaluation of the results from the September 2023 semi-annual detection monitoring sampling event are due to be completed in January 2024 and will be reported in the next annual report.

2.2.3 Problems Encountered

No noteworthy problems (i.e., problems could include damaged wells, issues with sample collection or lack of sampling, or problems with analytical analysis) were encountered at the FGD in 2023.

2.2.4 Actions to Resolve Problems

No problems were encountered at the FGD in 2023, therefore, no additional actions to resolve problems were required.

2.2.5 Projected Key Activities for Upcoming Year

Key activities planned for 2024 include completion of the 2023 Annual Groundwater Monitoring and Corrective Action Report, statistical evaluation of semi-annual detection monitoring analytical data collected in September 2023, and 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 2023.

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), two independent detection monitoring samples from each background and downgradient monitoring well were collected in 2023. 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, with corresponding laboratory analytical reports provided in Attachment 2. Groundwater potentiometric elevation contour maps, along with calculated groundwater flow rates and directions, associated with each groundwater monitoring sampling event in 2023 are provided in Figures 2 and 3.

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

There was no transition between monitoring programs in 2023. Only detection monitoring was conducted in 2023.

An 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 257.94 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 2023.

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 2023; 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).

The FGD Landfill remains in detection monitoring and 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).

The FGD Landfill remains in detection monitoring, and no assessment monitoring samples were collected or analyzed in 2023. Consequently, Evergy is not required to establish groundwater protection standards for this CCR unit, and this criterion is not applicable.

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 2023. The FGD Landfill remained in detection monitoring during 2023.

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 2023; therefore, no demonstration or certification is applicable for this unit.

TABLE

TABLE I
SUMMARY OF ANALYTICAL RESULTS - 2023 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		MW-FGD-4		MW-FGD-9	
Measure Point (TOC)	1239.05				1277.52		1184.20		1186.26		1188.43		1175.51	
Sample Name	FGD-1-031423	DUP-FGD-031423	FGD-1-090623	FGD-DUP-090623	FGD-6-031423	FGD-6-090623	FGD-2-031423	FGD-2-090623	FGD-3-031423	FGD-3-090623	FGD-4-031423	FGD-4-090623	FGD-9-031423	FGD-9-090623
Sample Date	3/14/2023	3/14/2023	9/6/2023	9/6/2023	3/14/2023	9/6/2023	3/14/2023	9/6/2023	3/14/2023	9/6/2023	3/14/2023	9/6/2023	3/14/2023	9/6/2023
Final Lab Report Date	3/24/2023	3/24/2023	9/22/2023	9/22/2023	3/24/2023	9/22/2023	3/24/2023	9/22/2023	3/24/2023	9/22/2023	3/24/2023	9/22/2023	3/24/2023	9/22/2023
Final Lab Report Revision Date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lab Data Reviewed and Accepted	6/8/2023	6/8/2023	12/13/2023	12/13/2023	6/8/2023	12/13/2023	6/8/2023	12/13/2023	6/8/2023	12/13/2023	6/8/2023	12/13/2023	6/8/2023	12/13/2023
Depth to Water (ft btoc)	71.78	-	75.74	75.74	100.60	100.70	21.46	24.89	22.80	26.61	30.90	33.46	8.38	13.53
Temperature (Deg C)	13.08	-	16.40	-	12.00	20.64	13.11	18.71	13.16	19.94	12.95	17.95	12.96	16.65
Conductivity (µS/cm)	890	-	845	-	9,650	8,100	1,240	1,130	992	856	2,210	2,130	1,070	1,030
Turbidity (NTU)	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dissolved Oxygen, Field (mg/L)	0.83	-	0.00	-	1.90	0.00	0.00	0.00	0.00	1.49	0.00	0.00	2.68	0.00
ORP, Field (mV)	-5	-	-29	-	-70	-89	84	63	84	89	86	84	99	74
pH, Field (su)	7.39	-	7.42	-	7.02	7.22	7.05	7.11	7.17	7.31	7.00	7.00	7.30	7.22
Boron, Total (mg/L)	< 0.10	< 0.10	< 0.10	< 0.10	**10.6**	**10.8**	**0.19**	**0.19**	< 0.10	< 0.10	**0.40**	**0.40**	**0.44**	**0.44**
Calcium, Total (mg/L)	**94.3**	**99.0**	**101**	**103**	**575**	**620**	**169**	**180**	**123**	**131**	**306**	**316**	**131**	**144**
Chloride (mg/L)	**74.5**	**74.9**	**75.5**	**76.1**	**2,900**	**1,950**	**57.6**	**59.7**	**60.4**	**60.1**	**198**	**186**	**46.3**	**49.0**
Fluoride (mg/L)	< 0.20	< 0.20	**0.22**	**0.25**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Sulfate (mg/L)	**81.2**	**79.0**	**90.8**	**92.0**	**2,780**	**2,500**	**295**	**308**	**164**	**162**	**773**	**544**	**310**	**299**
pH (su)	**7.4**	**7.2**	**7.3**	**7.3**	**7.1**	**6.7**	**7.1**	**7.0**	**7.2**	**7.2**	**6.9**	**7.0**	**7.1**	**7.2**
TDS (mg/L)	**515**	**531**	**559**	**594**	**8,120**	**8,240**	**850**	**896**	**630**	**652**	**1,900**	**1,980**	**716**	**796**

Notes:
Bold value: *Detection above laboratory reporting limit.*
µS/cm = micro Siemens per centimeter
Deg C = degrees Celsius
ft btoc = feet below top of casing
mg/L = milligrams per liter
mV = millivolt
N/A = Not Applicable
NTU = Nephelometric Turbidity Unit
ORP = oxidation reduction potential
su = standard unit
TDS = total dissolved solids
TOC = top of casing

FIGURES

LEGEND

- MONITORING WELL
- PIEZOMETER
- FGD LANDFILL BOUNDARY
- FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI, 20 OCTOBER 2022

N

0 450 900
SCALE IN FEET

HALEY ALDRICH

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

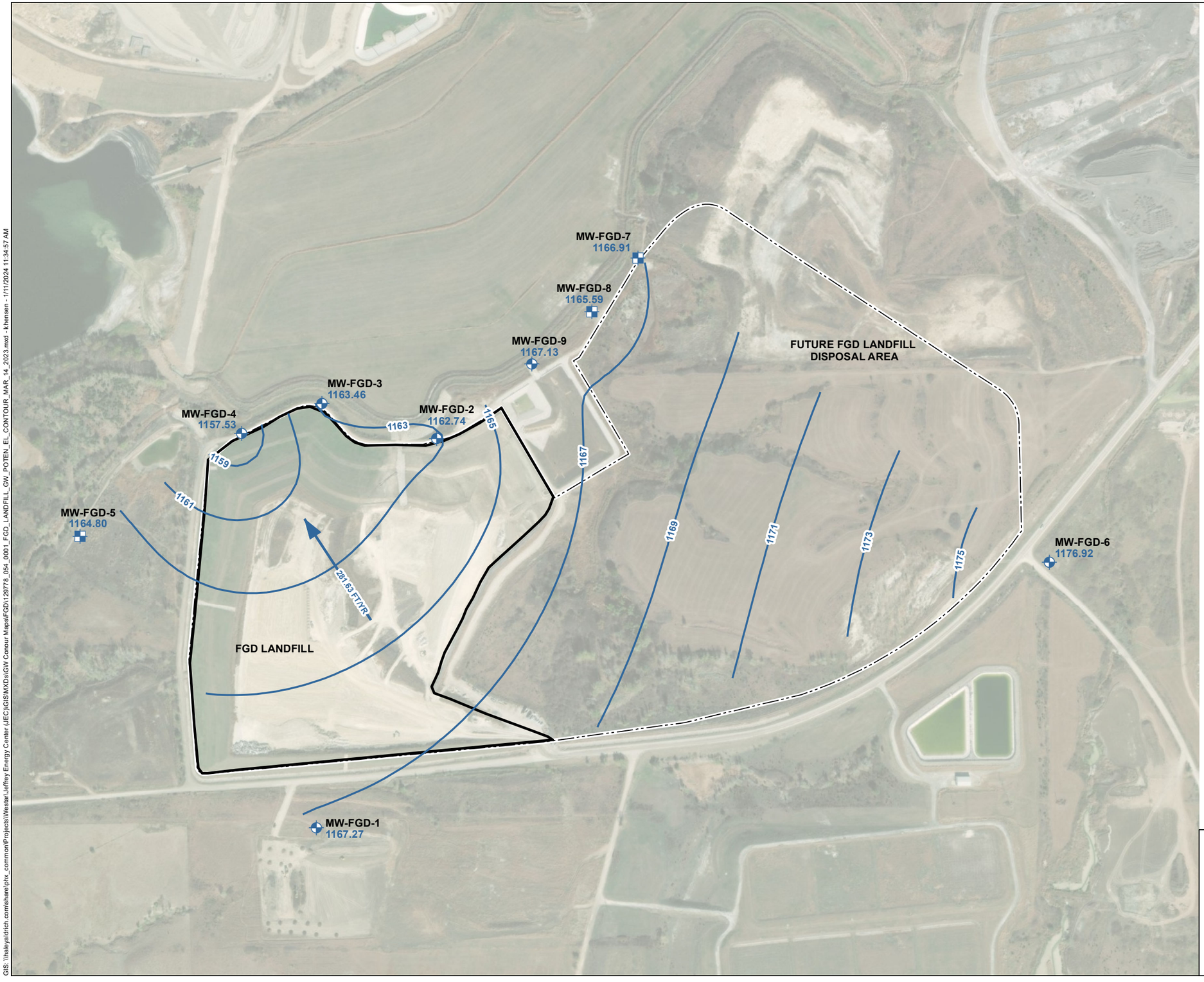
FGD LANDFILL
MONITORING WELL LOCATION MAP

evergy

JANUARY 2024

FIGURE 1

GIS: \\haleyaldrich.com\share\phx_common\Projects\Westar\GIS\Jeffrey Energy Center\Maps\2024 011129778 054 0001 FGD MONITORING WELL LOCATION MAP.mxd - khensen - 1/11/2024 11:19:02 AM



LEGEND

- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, IN FEET
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL BOUNDARY
- FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 MARCH 2023.

3. GROUNDWATER ELEVATION IN **BOLD BLUE TEXT** AND IN FEET ABOVE MEAN SEA LEVEL (AMSL).

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

5. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 14 MARCH 2023 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM PUBLISHED SOURCES AND GROUNDWATER ELEVATION DATA MEASURED BETWEEN AUGUST 2016 AND SEPTEMBER 2018.

6. AERIAL IMAGERY SOURCE: ESRI, OCTOBER 20, 2022.

N

0 450 900
SCALE IN FEET

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

FGD LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MARCH 14, 2023

evergy

JANUARY 2024

FIGURE 2

GIS: \\haleyaldrich.com\share\phx_common\Projects\Westar\Jeffrey Energy Center (JEC)\GIS\MXDs\GW Conour Maps\FGD\129778_054_0001_FGD_LANDFILL_GW_POTEN_EL_CONTOUR_MAR_14_2023.mxd - khensen - 1/11/2024 11:34:57 AM

LEGEND

- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, IN FEET
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL BOUNDARY
- FUTURE FGD LANDFILL DISPOSAL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 6 SEPTEMBER 2023.

3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 6 SEPTEMBER 2023 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM PUBLISHED SOURCES AND GROUNDWATER ELEVATION DATA MEASURED BETWEEN AUGUST 2016 AND SEPTEMBER 2018.

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

5. GROUNDWATER ELEVATION IN **BOLD BLUE TEXT** AND IN FEET ABOVE MEAN SEA LEVEL (AMSL).

6. AERIAL IMAGERY SOURCE: ESRI, 20 OCTOBER 2022

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 6, 2023

evergy

JANUARY 2024

FIGURE 3

GIS: \\haleyaldrich.com\share\phx_common\Projects\Westar\GIS\Jeffrey Energy Center\Maps\2024 01\1129778 054 0001 FGD GDWTR CONTOUR MAP SEPTEMBER 2023.mxd - khensen - 1/11/2024 8:14:25 AM

ATTACHMENT 1
Statistical Analyses

ATTACHMENT 1-1
September 2022 Semi-Annual Groundwater Assessment Monitoring Data Statistical Evaluation

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

TECHNICAL MEMORANDUM

January 31, 2024
File No. 129778-050

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

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

SUBJECT: September 2022 Semi-Annual Groundwater Detection Monitoring Data Statistical Evaluation
Completed February 1, 2023
Jeffrey Energy Center
Flue Gas Desulfurization Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) §§ 257.93 and 257.94 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the **September 2022** semi-annual detection monitoring groundwater sampling event for the Jeffrey Energy Center (JEC) Flue Gas Desulfurization (FGD) Landfill. This semi-annual detection monitoring groundwater sampling event was completed on **September 8, 2022**, with laboratory results received and validated on **November 7, 2022**.

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR § 257.93(f)(1-4)). The statistical evaluation discussed in this memorandum was conducted to determine if Appendix III groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant increase (SSI) above background or upgradient wells consistent with the requirements in 40 CFR § 257.94.

Statistical Evaluation of Appendix III Constituents

The two statistical methods used for these evaluations, prediction limits (PL) and Parametric Analysis of Variance, were certified by Haley & Aldrich, Inc. on April 17, 2019. The PL method, as determined applicable for this sampling event, was used to evaluate potential SSIs above background. Background levels for each constituent listed in Appendix III (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids) were computed as upper prediction limits (UPL), considering one future observation, and a minimum 95 percent confidence coefficient. The most recent groundwater sampling event from each compliance well was compared to the corresponding background PL to determine if a SSI existed.

STATISTICAL EVALUATION

An interwell evaluation using the PL method was used to complete the statistical evaluation of the referenced dataset. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data (MW-FGD-1 and MW-FGD-6). A PL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a specified confidence level (e.g., 95 percent). The upper endpoint of a concentration limit is called the UPL. Depending on the background data distribution, parametric or non-parametric PL procedures are used to evaluate groundwater monitoring data using this method. Parametric PLs utilize normally distributed data or normalized data via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the PL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UPL.

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

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations (MW-FGD-1 and MW-FGD-6) were combined to calculate the UPL for each detected Appendix III constituent. The variability and distribution of the pooled dataset were evaluated to determine the method for UPL calculation. Per the document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance,* March 2009*,* background concentrations were updated based on statistical evaluation of analytical results collected through **March 2022.**

RESULTS OF APPENDIX III DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the Appendix III constituents from the **September 2022** semi-annual detection monitoring sampling event were compared to their respective background UPLs (Table I). A sample concentration greater than the background UPL is considered to represent a SSI. The results of the groundwater detection monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation of groundwater sampling data collected in September 2022, no SSIs above background PLs occurred at the JEC FGD Landfill.**

Attachments:

Table I – Summary of Semi-Annual Detection Groundwater Monitoring Statistical Evaluation

TABLE

TABLE I

SUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATION

SEPTEMBER 2022 SAMPLING EVENT

JEFFREY ENERGY CENTER FLUE GAS DESULFURIZATION LANDFILL

ST. MARYS, KANSAS

													Interwell Analysis	
Location Id	**Frequency of Detection**	**Percent Non-Detects**	**Range of Non-Detect**	**Maximum Detect**	**Variance**	**Standard Deviation**	**Coefficient of Variance**	**Outlier Presence**	**Outlier Removed**	**Trend**	**Distribution Well**	**September 2022 Concentration (mg/L)**	**Background Limits[1] (UPL) mg/L**	**SSI**
CCR Appendix-III: Boron, Total (mg/L)														
MW-FGD-1 (upgradient)	7/18	61%	0.1-0.1	0.13	0.00007353	0.008575	0.08167	Yes	No	Stable	Non-parametric	< 0.10	11.400	
MW-FGD-6 (upgradient)	16/16	0%	-	11.4	2.84	1.685	0.1702	No	No	Increasing		11.1		
MW-FGD-2	18/18	0%	-	0.26	0.0003028	0.0174	0.07492	No	No	Decreasing	Normal	0.21		No
MW-FGD-3	16/18	11%	0.1-0.1	0.18	0.0004987	0.02233	0.1625	No	No	Stable	Normal	0.10		No
MW-FGD-4	18/18	0%	-	0.45	0.003935	0.06273	0.1983	No	No	Increasing	Normal	0.39		No
MW-FGD-9	16/16	0%	-	0.59	0.002913	0.05397	0.1078	No	No	Stable	Normal	0.45		No
CCR Appendix-III: Calcium, Total (mg/L)														
MW-FGD-1 (upgradient)	18/18	0%	-	111	25.09	5.009	0.05222	Yes	No	Increasing	Non-parametric	93.3	695	
MW-FGD-6 (upgradient)	16/16	0%	-	695	1601	40.01	0.06603	No	No	Increasing		584		
MW-FGD-2	18/18	0%	-	236	1644	40.54	0.244	No	No	Increasing	Normal	191		No
MW-FGD-3	18/18	0%	-	228	778.6	27.9	0.1732	No	No	Stable	Normal	126		No
MW-FGD-4	18/18	0%	-	376	6313	79.46	0.3401	No	No	Increasing	Normal	310		No
MW-FGD-9	16/16	0%	-	137	215.7	14.69	0.1296	No	No	Increasing	Normal	129		No
CCR Appendix-III: Chloride (mg/L)														
MW-FGD-1 (upgradient)	18/18	0%	-	75.4	121.1	11.01	0.1851	No	No	Increasing	Non-parametric	73.4	2440	
MW-FGD-6 (upgradient)	16/16	0%	-	2440	200200	447.4	0.2322	Yes	No	Increasing		2,310		
MW-FGD-2	18/18	0%	-	85.1	332.2	18.23	0.3681	No	No	Increasing	Normal	69.8		No
MW-FGD-3	18/18	0%	-	132	691	26.29	0.3574	No	No	Increasing	Normal	62.5		No
MW-FGD-4	18/18	0%	-	246	3290	57.36	0.4501	No	No	Increasing	Normal	197		No
MW-FGD-9	16/16	0%	-	42.5	31.81	5.64	0.1502	Yes	No	Decreasing	Normal	19.0		No
CCR Appendix-III: Fluoride (mg/L)														
MW-FGD-1 (upgradient)	21/21	0%	-	0.44	0.002213	0.04704	0.1389	No	No	Stable	Non-parametric	0.25	3.400	
MW-FGD-6 (upgradient)	17/19	11%	0.2-0.2	3.4	0.4882	0.6987	0.5488	Yes	No	Stable		< 0.20		
MW-FGD-2	18/21	14%	0.2-0.2	0.41	0.004753	0.06894	0.2132	No	No	Decreasing	Normal	< 0.20		No
MW-FGD-3	17/21	19%	0.2-0.2	0.53	0.005805	0.07619	0.2662	Yes	No	Stable	Normal	< 0.20		No
MW-FGD-4	18/21	14%	0.2-0.2	0.46	0.005379	0.07334	0.2275	No	No	Stable	Non-parametric	< 0.20		No
MW-FGD-9	17/18	6%	0.2-0.2	0.56	0.009583	0.09789	0.2073	Yes	No	Stable	Normal	0.25		No
CCR Appendix-III: pH (lab) (SU)														
MW-FGD-1 (upgradient)	18/18	0%	-	7.8	0.04065	0.2016	0.02733	No	No	Stable	Normal	7.5	8.1	
MW-FGD-6 (upgradient)	16/16	0%	-	7.5	0.04096	0.2024	0.02799	No	No	Stable		7.2		
MW-FGD-2	18/18	0%	-	7.8	0.04644	0.2155	0.02954	No	No	Decreasing	Normal	7.6		No
MW-FGD-3	18/18	0%	-	7.6	0.04	0.2	0.02765	No	No	Stable	Normal	7.5		No
MW-FGD-4	18/18	0%	-	7.6	0.025	0.1581	0.02201	Yes	No	Decreasing	Normal	7.0		No
MW-FGD-9	16/16	0%	-	7.8	0.03329	0.1825	0.02485	No	No	Stable	Normal	7.1		No
CCR Appendix-III: Sulfate (mg/L)														
MW-FGD-1 (upgradient)	18/18	0%	-	106	41.05	6.407	0.07021	Yes	No	Stable	Non-parametric	94.2	3190	
MW-FGD-6 (upgradient)	16/16	0%	-	3190	110300	332.1	0.1193	Yes	No	Stable		2,950		
MW-FGD-2	18/18	0%	-	528	11500	107.3	0.3448	No	No	Increasing	Normal	376		No
MW-FGD-3	18/18	0%	-	479	9079	95.29	0.3052	No	No	Stable	Normal	200		No
MW-FGD-4	18/18	0%	-	899	42650	206.5	0.3669	No	No	Increasing	Normal	875		No
MW-FGD-9	16/16	0%	-	303	2595	50.94	0.2363	No	No	Increasing	Normal	290		No
CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)														
MW-FGD-1 (upgradient)	18/18	0%	-	552	386.3	19.65	0.03746	No	No	Increaseing	Non-parametric	544	9100	
MW-FGD-6 (upgradient)	16/16	0%	-	9100	1935000	1391	0.1906	Yes	No	Stable		8,780		
MW-FGD-2	18/18	0%	-	1280	43780	209.2	0.2499	No	No	Increasing	Normal	1060		No
MW-FGD-3	18/18	0%	-	1310	33590	183.3	0.2056	No	No	Stable	Normal	733		No
MW-FGD-4	18/18	0%	-	2150	209300	457.5	0.3367	No	No	Increasing	Normal	1,950		No
MW-FGD-9	16/16	0%	-	759	5679	75.36	0.1172	No	No	Increasing	Normal	759		No

Notes:

[1] Based on background data collected from 08/24/2016 through 03/09/2022

CCR = coal combustion residual

mg/L = milligrams per liter

SSI = statistically significant increase

SU = standard unit

UPL = upper prediction limit

ATTACHMENT 1-2
March 2023 Semi-Annual Groundwater Assessment Monitoring Data Statistical Evaluation

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

TECHNICAL MEMORANDUM

January 31, 2024
File No. 129778-050

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

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

SUBJECT: March 2023 Semi-Annual Groundwater Detection Monitoring Data
Statistical Evaluation
Completed July 21, 2023
Jeffrey Energy Center
Flue Gas Desulfurization Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) §§ 257.93 and 257.94 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the **March 2023** semi-annual detection monitoring groundwater sampling event for the Jeffrey Energy Center (JEC) Flue Gas Desulfurization (FGD) Landfill. This semi-annual detection monitoring groundwater sampling event was completed on **March 14, 2023**, with laboratory results received and validated on **June 8, 2023**.

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR § 257.93(f)(1-4)). The statistical evaluation discussed in this memorandum was conducted to determine if Appendix III groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant increase (SSI) above background or upgradient wells consistent with the requirements in 40 CFR § 257.94.

Statistical Evaluation of Appendix III Constituents

The two statistical methods used for these evaluations, prediction limits (PL) and Parametric Analysis of Variance, were certified by Haley & Aldrich, Inc. on April 17, 2019. The PL method, as determined applicable for this sampling event, was used to evaluate potential SSIs above background. Background levels for each constituent listed in Appendix III (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids) were computed as upper prediction limits (UPL), considering one future observation, and a minimum 95 percent confidence coefficient. The most recent groundwater sampling event from each compliance well was compared to the corresponding background PL to determine if a SSI existed.

STATISTICAL EVALUATION

An interwell evaluation using the PL method was used to complete the statistical evaluation of the referenced dataset. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data (MW-FGD-1 and MW-FGD-6). A PL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a specified confidence level (e.g., 95 percent). The upper endpoint of a concentration limit is called the UPL. Depending on the background data distribution, parametric or non-parametric PL procedures are used to evaluate groundwater monitoring data using this method. Parametric PLs utilize normally distributed data or normalized data via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the PL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UPL.

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

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations (MW-FGD-1 and MW-FGD-6) were combined to calculate the UPL for each detected Appendix III constituent. The variability and distribution of the pooled dataset were evaluated to determine the method for UPL calculation. Per the document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance,* March 2009*,* background concentrations were updated based on statistical evaluation of analytical results collected through **March 2023.**

RESULTS OF APPENDIX III DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the Appendix III constituents from the **March 2023** semi-annual detection monitoring sampling event were compared to their respective background UPLs (Table I). A sample concentration greater than the background UPL is considered to represent a SSI. The results of the groundwater detection monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation of groundwater sampling data collected in March 2023, no SSIs above background PLs occurred at the JEC FGD Landfill.**

Attachments:

Table I – Summary of Semi-Annual Detection Groundwater Monitoring Statistical Evaluation

TABLE

TABLE I
SUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATION
MARCH 2023 SAMPLING EVENT
JEFFREY ENERGY CENTER FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

													Interwell Analysis	
Location Id	**Frequency of Detection**	**Percent Non-Detects**	**Range of Non-Detect**	**Maximum Detect**	**Variance**	**Standard Deviation**	**Coefficient of Variance**	**Outlier Presence**	**Outlier Removed**	**Trend**	**Distribution Well**	**March 2023 Concentration (mg/L)**	**Background Limits[1] (UPL) mg/L**	**SSI**
CCR Appendix-III: Boron, Total (mg/L)														
MW-FGD-1 (upgradient)	7/19	63%	0.1-0.1	0.13	0.00007076	0.008412	0.08031	Yes	No	Stable	Non-parametric	< 0.10	11.400	
MW-FGD-6 (upgradient)	17/17	0%	-	11.4	2.691	1.641	0.165	No	No	Increasing		10.6		
MW-FGD-2	19/19	0%	-	0.26	0.0003801	0.01949	0.08474	No	No	Decreasing	Normal	0.19		No
MW-FGD-3	16/19	16%	0.1-0.1	0.18	0.0005448	0.02334	0.1723	No	No	Stable	Normal	< 0.10		No
MW-FGD-4	19/19	0%	-	0.45	0.004084	0.06391	0.1992	No	No	Increasing	Normal	0.40		No
MW-FGD-9	17/17	0%	-	0.59	0.002947	0.05429	0.1092	No	No	Stable	Normal	0.44		No
CCR Appendix-III: Calcium, Total (mg/L)														
MW-FGD-1 (upgradient)	19/19	0%	-	111	23.83	4.882	0.05094	Yes	No	Stable	Non-parametric	94.3	695	
MW-FGD-6 (upgradient)	17/17	0%	-	695	1557	39.45	0.06531	No	No	Stable		575		
MW-FGD-2	19/19	0%	-	236	1553	39.41	0.2369	No	No	Increasing	Normal	169		No
MW-FGD-3	19/19	0%	-	228	811.8	28.49	0.1791	No	No	Stable	Normal	123		No
MW-FGD-4	19/19	0%	-	376	6238	78.98	0.3327	No	No	Increasing	Normal	306		No
MW-FGD-9	17/17	0%	-	137	220.5	14.85	0.1298	No	No	Increasing	Normal	131		No
CCR Appendix-III: Chloride (mg/L)														
MW-FGD-1 (upgradient)	19/19	0%	-	75.4	126.3	11.24	0.1866	No	No	Increasing	Non-parametric	74.5	2900	
MW-FGD-6 (upgradient)	17/17	0%	-	2900	243400	493.3	0.2487	Yes	No	Increasing		2,900		
MW-FGD-2	19/19	0%	-	85.1	317.2	17.81	0.3566	No	No	Increasing	Normal	57.6		No
MW-FGD-3	19/19	0%	-	132	661.7	25.72	0.3531	No	No	Increasing	Normal	60.4		No
MW-FGD-4	19/19	0%	-	246	3369	58.04	0.4426	No	No	Increasing	Normal	198		No
MW-FGD-9	17/17	0%	-	46.3	34.32	5.859	0.1539	Yes	No	Decreasing	Normal	46.3		No
CCR Appendix-III: Fluoride (mg/L)														
MW-FGD-1 (upgradient)	21/22	5%	0.2-0.2	0.44	0.00298	0.05459	0.1643	No	No	Stable	Non-parametric	< 0.20	3.400	
MW-FGD-6 (upgradient)	17/20	15%	0.2-0.2	3.4	0.5201	0.7212	0.5913	Yes	No	Stable		< 0.20		
MW-FGD-2	18/22	18%	0.2-0.2	0.41	0.005218	0.07224	0.2274	No	No	Decreasing	Normal	< 0.20		No
MW-FGD-3	17/22	23%	0.2-0.2	0.53	0.005866	0.07659	0.2713	Yes	No	Stable	Normal	< 0.20		No
MW-FGD-4	18/22	18%	0.2-0.2	0.46	0.005804	0.07618	0.2405	No	No	Stable	Non-parametric	< 0.20		No
MW-FGD-9	17/19	11%	0.2-0.2	0.56	0.01295	0.1138	0.2485	Yes	No	Stable	Normal	< 0.20		No
CCR Appendix-III: pH (lab) (SU)														
MW-FGD-1 (upgradient)	19/19	0%	-	7.8	0.03842	0.196	0.02656	No	No	Stable	Normal	7.4	8.1	
MW-FGD-6 (upgradient)	17/17	0%	-	7.5	0.03941	0.1985	0.02748	No	No	Decreasing		7.1		
MW-FGD-2	19/19	0%	-	7.8	0.04585	0.2141	0.0294	No	No	Decreasing	Normal	7.1		No
MW-FGD-3	19/19	0%	-	7.6	0.03784	0.1945	0.0269	No	No	Stable	Normal	7.2		No
MW-FGD-4	19/19	0%	-	7.6	0.02784	0.1668	0.02327	Yes	No	Decreasing	Normal	6.9		No
MW-FGD-9	17/17	0%	-	7.8	0.03471	0.1863	0.02542	No	No	Stable	Normal	7.1		No

TABLE I
SUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATION
MARCH 2023 SAMPLING EVENT
JEFFREY ENERGY CENTER FLUE GAS DESULFURIZATION LANDFILL
ST. MARYS, KANSAS

													Interwell Analysis	
Location Id	**Frequency of Detection**	**Percent Non-Detects**	**Range of Non-Detect**	**Maximum Detect**	**Variance**	**Standard Deviation**	**Coefficient of Variance**	**Outlier Presence**	**Outlier Removed**	**Trend**	**Distribution Well**	**March 2023 Concentration (mg/L)**	**Background Limits[1] (UPL) mg/L**	**SSI**
CCR Appendix-III: Sulfate (mg/L)														
MW-FGD-1 (upgradient)	19/19	0%	-	106	44.09	6.64	0.07319	Yes	No	Stable	Non-parametric	81.2	3190	
MW-FGD-6 (upgradient)	17/17	0%	-	3190	103400	321.5	0.1155	Yes	No	Stable		2,780		
MW-FGD-2	19/19	0%	-	528	10880	104.3	0.3362	No	No	Increasing	Normal	295		No
MW-FGD-3	19/19	0%	-	479	9730	98.64	0.3241	No	No	Stable	Normal	164		No
MW-FGD-4	19/19	0%	-	899	42610	206.4	0.3597	No	No	Increasing	Normal	773		No
MW-FGD-9	17/17	0%	-	310	2957	54.38	0.2459	No	No	Increasing	Normal	310		No
CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)														
MW-FGD-1 (upgradient)	19/19	0%	-	552	369.7	19.23	0.03668	No	No	Increaseing	Non-parametric	515	9100	
MW-FGD-6 (upgradient)	17/17	0%	-	9100	1854000	1362	0.1853	Yes	No	Stable		8,120		
MW-FGD-2	19/19	0%	-	1280	41360	203.4	0.2427	No	No	Increasing	Normal	850		No
MW-FGD-3	19/19	0%	-	1310	35310	187.9	0.2141	No	No	Stable	Normal	630		No
MW-FGD-4	19/19	0%	-	2150	213100	461.6	0.3328	No	No	Increasing	Normal	1,900		No
MW-FGD-9	17/17	0%	-	759	5639	75.1	0.1161	No	No	Increasing	Normal	716		No

Notes:
[1] Based on background data collected from 08/24/2016 through 03/14/2023.
CCR = coal combustion residual
mg/L = milligrams per liter
SSI = statistically significant increase
SU = standard unit
UPL = upper prediction limit

ATTACHMENT 2
Laboratory Analytical Reports

ATTACHMENT 2-1
March 2023 Semi-Annual Sampling Event
Laboratory Analytical Report

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

March 24, 2023

Jake Humphrey
Evergy, Inc.
818 S Kansas Avenue
Topeka, KS 66612

RE: Project: JEC FGD CCR
Pace Project No.: 60423972

Dear Jake Humphrey:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2023. 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,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Shelly Gomez, Evergy
Laura Hines, Evergy, Inc.
Shannon Hughes, Evergy
Adam Irvin, Evergy
Samantha Kaney, Haley & Aldrich
Adriana Sosa, Haley & Aldrich, Inc.
Andrew Watson, Haley & Aldrich

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: JEC FGD CCR
Pace Project No.: 60423972

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 22-031-0
Illinois Certification #: 2000302021-3
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212023-1
Oklahoma Certification #: 2022-057
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-21-15
Utah Certification #: KS000212022-12
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.: 60423972

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60423972001	**FGD-1-031423**	Water	03/14/23 13:45	03/15/23 12:40
60423972002	**FGD-2-031423**	Water	03/14/23 15:30	03/15/23 12:40
60423972003	**FGD-3-031423**	Water	03/14/23 14:55	03/15/23 12:40
60423972004	**FGD-4-031423**	Water	03/14/23 14:30	03/15/23 12:40
60423972005	**FGD-6-031423**	Water	03/14/23 13:10	03/15/23 12:40
60423972006	**FGD-9-031423**	Water	03/14/23 16:00	03/15/23 12:40
60423972007	**DUP-FGD-031423**	Water	03/14/23 13:45	03/15/23 12:40

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

SAMPLE ANALYTE COUNT

Project: JEC FGD CCR
Pace Project No.: 60423972

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60423972001	**FGD-1-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	BLA	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972002	**FGD-2-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	BLA	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972003	**FGD-3-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	BLA	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972004	**FGD-4-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	BLA	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972005	**FGD-6-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	CRN2	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972006	**FGD-9-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	RB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60423972007	**DUP-FGD-031423**	EPA 200.7	ALH	2	PASI-K
		SM 2540C	MLD	1	PASI-K
		SM 4500-H+B	CRN2	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60423972

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: March 24, 2023

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
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(913)599-5665

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60423972

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Evergy Kansas Central, Inc.
Date: March 24, 2023

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.: 60423972

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: Evergy Kansas Central, Inc.
Date: March 24, 2023

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-031423 (Lab ID: 60423972007)
- FGD-1-031423 (Lab ID: 60423972001)
- FGD-2-031423 (Lab ID: 60423972002)
- FGD-3-031423 (Lab ID: 60423972003)
- FGD-4-031423 (Lab ID: 60423972004)
- FGD-6-031423 (Lab ID: 60423972005)
- FGD-9-031423 (Lab ID: 60423972006)

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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(913)599-5665

PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60423972

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: March 24, 2023

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 FGD CCR
Pace Project No.: 60423972

Sample: FGD-1-031423 **Lab ID: 60423972001** Collected: 03/14/23 13:45 Received: 03/15/23 12:40 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	**<0.10**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:18	7440-42-8	
Calcium, Total Recoverable	**94.3**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:18	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**515**	mg/L	10.0	1		03/21/23 10:43		
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		03/16/23 09:29		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**74.5**	mg/L	20.0	20		03/20/23 11:22	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 10:42	16984-48-8	
Sulfate	**81.2**	mg/L	20.0	20		03/20/23 11:22	14808-79-8	

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60423972

Sample: FGD-2-031423 **Lab ID: 60423972002** Collected: 03/14/23 15:30 Received: 03/15/23 12:40 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	**0.19**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:24	7440-42-8	
Calcium, Total Recoverable	**169**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:24	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**850**	mg/L	10.0	1		03/21/23 10:43		
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		03/16/23 09:30		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**57.6**	mg/L	20.0	20		03/20/23 12:15	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 12:02	16984-48-8	
Sulfate	**295**	mg/L	20.0	20		03/20/23 12:15	14808-79-8	

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.: 60423972

Sample: FGD-3-031423 **Lab ID: 60423972003** Collected: 03/14/23 14:55 Received: 03/15/23 12:40 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	**<0.10**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:26	7440-42-8	
Calcium, Total Recoverable	**123**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:26	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**630**	mg/L	10.0	1		03/21/23 10:44		
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		03/16/23 09:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**60.4**	mg/L	20.0	20		03/20/23 13:09	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 12:55	16984-48-8	
Sulfate	**164**	mg/L	20.0	20		03/20/23 13:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60423972

Sample: FGD-4-031423 **Lab ID: 60423972004** Collected: 03/14/23 14:30 Received: 03/15/23 12:40 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	03/17/23 06:51	03/22/23 14:28	7440-42-8	
Calcium, Total Recoverable	**306**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:28	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1900**	mg/L	20.0	1		03/21/23 10:44		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**6.9**	Std. Units	0.10	1		03/16/23 09:35		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**198**	mg/L	20.0	20		03/20/23 13:36	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 13:22	16984-48-8	
Sulfate	**773**	mg/L	200	200		03/22/23 00:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60423972

Sample: FGD-6-031423 **Lab ID: 60423972005** Collected: 03/14/23 13:10 Received: 03/15/23 12:40 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	**10.6**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:30	7440-42-8	
Calcium, Total Recoverable	**575**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:30	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**8120**	mg/L	167	1		03/21/23 10:44		
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		03/16/23 10:38		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**2900**	mg/L	2000	2000		03/22/23 00:46	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 13:49	16984-48-8	
Sulfate	**2780**	mg/L	2000	2000		03/22/23 00:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60423972

Sample: FGD-9-031423 **Lab ID: 60423972006** Collected: 03/14/23 16:00 Received: 03/15/23 12:40 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	**0.44**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:38	7440-42-8	
Calcium, Total Recoverable	**131**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:38	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**716**	mg/L	10.0	1		03/21/23 10:44		
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		03/20/23 15:17		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**46.3**	mg/L	20.0	20		03/20/23 14:29	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 14:16	16984-48-8	
Sulfate	**310**	mg/L	20.0	20		03/20/23 14:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60423972

Sample: DUP-FGD-031423 **Lab ID: 60423972007** Collected: 03/14/23 13:45 Received: 03/15/23 12:40 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	**<0.10**	mg/L	0.10	1	03/17/23 06:51	03/22/23 14:40	7440-42-8	
Calcium, Total Recoverable	**99.0**	mg/L	0.20	1	03/17/23 06:51	03/22/23 14:40	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**531**	mg/L	10.0	1		03/21/23 10:44		
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		03/16/23 10:38		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**74.9**	mg/L	20.0	20		03/20/23 14:56	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		03/20/23 14:42	16984-48-8	
Sulfate	**79.0**	mg/L	20.0	20		03/20/23 14:56	14808-79-8	

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60423972

QC Batch: 837110
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: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

METHOD BLANK: 3319894 Matrix: Water
Associated Lab Samples: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	03/22/23 14:14	
Calcium	mg/L	<0.20	0.20	03/22/23 14:14	

LABORATORY CONTROL SAMPLE: 3319895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	2	1.9	96	85-115	
Calcium	mg/L	20	19.9	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3319896 3319897

Parameter	Units	60423972001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	<0.10	2	2	1.9	1.9	93	92	70-130	0	20	
Calcium	mg/L	94.3	20	20	111	113	81	91	70-130	2	20	

MATRIX SPIKE SAMPLE: 3319898

Parameter	Units	60424017002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	193 ug/L	2	2.1	94	70-130	
Calcium	mg/L	128000 ug/L	20	151	118	70-130	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60423972

QC Batch: 837624 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

METHOD BLANK: 3321463 Matrix: Water
Associated Lab Samples: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/21/23 10:43	

LABORATORY CONTROL SAMPLE: 3321464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	998	100	80-120	

SAMPLE DUPLICATE: 3321465

Parameter	Units	60423972001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	515	523	2	10	

SAMPLE DUPLICATE: 3321466

Parameter	Units	60423984003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1130	1230	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.: 60423972

QC Batch: 836668
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: 60423972001, 60423972002, 60423972003, 60423972004

SAMPLE DUPLICATE: 3318093

Parameter	Units	60423512001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60423972

QC Batch: 836964
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: 60423972005, 60423972007

SAMPLE DUPLICATE: 3319334

Parameter	Units	60423985001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.7	6.7	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60423972

QC Batch: 837514
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: 60423972006

SAMPLE DUPLICATE: 3321224

Parameter	Units	60423972006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.2	2	5	H6

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60423972

QC Batch: 837290
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: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

METHOD BLANK: 3320643 Matrix: Water
Associated Lab Samples: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/20/23 09:33	
Fluoride	mg/L	<0.20	0.20	03/20/23 09:33	
Sulfate	mg/L	<1.0	1.0	03/20/23 09:33	

METHOD BLANK: 3322668 Matrix: Water
Associated Lab Samples: 60423972001, 60423972002, 60423972003, 60423972004, 60423972005, 60423972006, 60423972007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/21/23 12:58	
Fluoride	mg/L	<0.20	0.20	03/21/23 12:58	
Sulfate	mg/L	<1.0	1.0	03/21/23 12:58	

LABORATORY CONTROL SAMPLE: 3320644

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

LABORATORY CONTROL SAMPLE: 3322669

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3320645 3320646

Parameter	Units	60423972001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	74.5	100	100	169	163	94	89	80-120	3	15	
Fluoride	mg/L	<0.20	2.5	2.5	2.1	2.1	85	86	80-120	1	15	
Sulfate	mg/L	81.2	100	100	186	178	105	97	80-120	4	15	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: JEC FGD CCR
Pace Project No.: 60423972

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FGD CCR
Pace Project No.: 60423972

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60423972001	**FGD-1-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972002	**FGD-2-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972003	**FGD-3-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972004	**FGD-4-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972005	**FGD-6-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972006	**FGD-9-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972007	**DUP-FGD-031423**	EPA 200.7	837110	EPA 200.7	837132
60423972001	**FGD-1-031423**	SM 2540C	837624		
60423972002	**FGD-2-031423**	SM 2540C	837624		
60423972003	**FGD-3-031423**	SM 2540C	837624		
60423972004	**FGD-4-031423**	SM 2540C	837624		
60423972005	**FGD-6-031423**	SM 2540C	837624		
60423972006	**FGD-9-031423**	SM 2540C	837624		
60423972007	**DUP-FGD-031423**	SM 2540C	837624		
60423972001	**FGD-1-031423**	SM 4500-H+B	836668		
60423972002	**FGD-2-031423**	SM 4500-H+B	836668		
60423972003	**FGD-3-031423**	SM 4500-H+B	836668		
60423972004	**FGD-4-031423**	SM 4500-H+B	836668		
60423972005	**FGD-6-031423**	SM 4500-H+B	836964		
60423972006	**FGD-9-031423**	SM 4500-H+B	837514		
60423972007	**DUP-FGD-031423**	SM 4500-H+B	836964		
60423972001	**FGD-1-031423**	EPA 300.0	837290		
60423972002	**FGD-2-031423**	EPA 300.0	837290		
60423972003	**FGD-3-031423**	EPA 300.0	837290		
60423972004	**FGD-4-031423**	EPA 300.0	837290		
60423972005	**FGD-6-031423**	EPA 300.0	837290		
60423972006	**FGD-9-031423**	EPA 300.0	837290		
60423972007	**DUP-FGD-031423**	EPA 300.0	837290		

WO# : 60423972

60423972

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Sample Con		
	Revision: 2	Effective Date: 01/12/2022	Issued By: Lenexa

Client Name: Evergy/ Kansas Central

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

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

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

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

Thermometer Used: T246 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.0 **Corr. Factor** -0.1 **Corrected** 0.9

Date and initials of person examining contents: AF 3/15

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	Cooler 2 - 2.2°
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? ☑Yes ☐No ☐N/A (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) **LOT#:** 6204001		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: _____

Qualtrax Document ID: 30468

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	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 Ober
Copy To:	Jared Morrison, Jake Humphrey, Laura Hines
Purchase Order No.:	
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:	Alice Spiller 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	Analysis Test Y/N	200.7 Total Metals*	4500 H+B pH	300: Cl, F, SO4	2540C TDS	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																	Y/N	N	N	N	N		60423972
1	FGD-1-031423	WT	G	-	-	03/14/23	13:45	-	4	3		1						X	X	X	X		
2	FGD-2-031423	WT	G	-	-	03/14/23	15:30	-	4	3		1						X	X	X	X		
3	FGD-3-031423	WT	G	-	-	03/14/23	14:55	-	4	3		1						X	X	X	X		
4	FGD-4-031423	WT	G	-	-	03/14/23	14:30	-	4	3		1						X	X	X	X		
5	FGD-6-031423	WT	G	-	-	03/14/23	13:10	-	4	3		1						X	X	X	X		
6	FGD-9-031423	WT	G	-	-	03/14/23	16:00	-	4	3		1						X	X	X	X		
7	DUP-FGD-031423	WT	G	-	-	03/14/23	13:45	-	4	3		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	Matt VanderPutten / SCS	3/14/23	10:00		3/15	1210	0.9	Y	IV	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Matt VanderPutten

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/14/23

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.

Client: Evergy Kansas Central Profile # 9657-1

Site: JEC FGD CCR Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																		1		2		1									
2																			1		2		1									
3																			1		2		1									
4																			1		2		1									
5																			1		2		1									
6																			1		2		1									
7																			1		2		1									
8																																
9																																
10																																
11																																
12																																

Container Codes

Glass				Plastic		Misc.	
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1C	1L NAOH plastic	I	Wipe/Swab
DG9H	40mL HCl amber voa vial	WGFU	4oz clear soil jar	BP1N	1L HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar	BP1S	1L H2SO4 plastic	ZPLC	Ziploc Bag
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide	BP1U	1L unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2C	500mL NAOH plastic	R	Terracore Kit
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic	U	Summa Can
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic		
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic		
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate	Matrix	
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3C	250mL NaOH plastic		
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered	WT	Water
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic	SL	Solid
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass	BP3U	250mL unpreserved plastic	NAL	Non-aqueous Liquid
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic	OL	OIL
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate	WP	Wipe
				BP4U	125mL unpreserved plastic	DW	Drinking Water
				BP4N	125mL HNO3 plastic		
				BP4S	125mL H2SO4 plastic		
				WPDU	16oz unpresserved plstic		

Work Order Number: 60423972

ATTACHMENT 2-2
September 2023 Semi-Annual Sampling Event Laboratory Analytical Report

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

September 22, 2023

Jake Humphrey
Evergy, Inc.
818 S Kansas Avenue
Topeka, KS 66612

RE: Project: JEC FGD CCR
Pace Project No.: 60437062

Dear Jake Humphrey:

Enclosed are the analytical results for sample(s) received by the laboratory on September 07, 2023. 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,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Shelly Gomez, Evergy
Laura Hines, Evergy, Inc.
Shannon Hughes, Evergy
Adam Irvin, Evergy
Samantha Kaney, Haley & Aldrich
Melanie Satanek, Haley Aldrich
Adriana Sosa, Haley & Aldrich, Inc.
Andrew Watson, Haley & Aldrich

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: JEC FGD CCR
Pace Project No.: 60437062

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 88-00679
Illinois Certification #: 2000302023-5
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212023-1
Oklahoma Certification #: 2022-057
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-22-16
Utah Certification #: KS000212022-12
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 FGD CCR
Pace Project No.: 60437062

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60437062001	**FGD-1-090623**	Water	09/06/23 13:10	09/07/23 16:30
60437062002	**FGD-2-090623**	Water	09/06/23 14:50	09/07/23 16:30
60437062003	**FGD-3-090623**	Water	09/06/23 14:20	09/07/23 16:30
60437062004	**FGD-4-090623**	Water	09/06/23 13:55	09/07/23 16:30
60437062005	**FGD-6-090623**	Water	09/06/23 12:30	09/07/23 16:30
60437062006	**FGD-9-090623**	Water	09/06/23 15:15	09/07/23 16:30
60437062007	**FGD-DUP-090623**	Water	09/06/23 13:10	09/07/23 16:30

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

SAMPLE ANALYTE COUNT

Project: JEC FGD CCR
Pace Project No.: 60437062

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60437062001	**FGD-1-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062002	**FGD-2-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062003	**FGD-3-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062004	**FGD-4-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062005	**FGD-6-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062006	**FGD-9-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K
60437062007	**FGD-DUP-090623**	EPA 200.7	JXD	2	PASI-K
		SM 2540C	BDH1	1	PASI-K
		SM 4500-H+B	RKA	1	PASI-K
		EPA 300.0	MLD	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60437062

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: September 22, 2023

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:

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PROJECT NARRATIVE

Project: JEC FGD CCR
Pace Project No.: 60437062

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: Evergy Kansas Central, Inc.
Date: September 22, 2023

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.: 60437062

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: Evergy Kansas Central, Inc.
Date: September 22, 2023

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.
- FGD-1-090623 (Lab ID: 60437062001)
- FGD-2-090623 (Lab ID: 60437062002)
- FGD-3-090623 (Lab ID: 60437062003)
- FGD-4-090623 (Lab ID: 60437062004)
- FGD-6-090623 (Lab ID: 60437062005)
- FGD-9-090623 (Lab ID: 60437062006)
- FGD-DUP-090623 (Lab ID: 60437062007)

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.: 60437062

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Evergy Kansas Central, Inc.
Date: September 22, 2023

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.

QC Batch: 865021

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60437054003,60437056002

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

- MS (Lab ID: 3425432)
  - Chloride
  - Fluoride
  - Sulfate
- MSD (Lab ID: 3425431)
  - Sulfate

R1: RPD value was outside control limits.

- MSD (Lab ID: 3425431)
  - Sulfate

Additional Comments:

Analyte Comments:

QC Batch: 865021

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

- MS (Lab ID: 3425430)
  - Sulfate
- MS (Lab ID: 3425432)
  - Chloride
  - Sulfate
- MSD (Lab ID: 3425431)
  - Sulfate

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-1-090623 **Lab ID: 60437062001** Collected: 09/06/23 13:10 Received: 09/07/23 16:30 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	**<0.10**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:29	7440-42-8	
Calcium, Total Recoverable	**101**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:29	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**559**	mg/L	10.0	1		09/13/23 10:34		
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		09/09/23 13:43		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**75.5**	mg/L	20.0	20		09/20/23 19:18	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	1		09/20/23 19:05	16984-48-8	
Sulfate	**90.8**	mg/L	20.0	20		09/20/23 19:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-2-090623 **Lab ID: 60437062002** Collected: 09/06/23 14:50 Received: 09/07/23 16:30 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	**0.19**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:33	7440-42-8	
Calcium, Total Recoverable	**180**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:33	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**896**	mg/L	10.0	1		09/13/23 10:35		
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		09/12/23 15:05		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**59.7**	mg/L	20.0	20		09/20/23 20:25	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/20/23 20:12	16984-48-8	
Sulfate	**308**	mg/L	20.0	20		09/20/23 20:25	14808-79-8	

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-3-090623 **Lab ID: 60437062003** Collected: 09/06/23 14:20 Received: 09/07/23 16:30 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	**<0.10**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:35	7440-42-8	
Calcium, Total Recoverable	**131**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:35	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**652**	mg/L	10.0	1		09/13/23 10:35		
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		09/12/23 15:01		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**60.1**	mg/L	20.0	20		09/20/23 21:05	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/20/23 20:52	16984-48-8	
Sulfate	**162**	mg/L	20.0	20		09/20/23 21:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-4-090623 **Lab ID: 60437062004** Collected: 09/06/23 13:55 Received: 09/07/23 16:30 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	09/14/23 12:10	09/18/23 13:37	7440-42-8	
Calcium, Total Recoverable	**316**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:37	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**1980**	mg/L	20.0	1		09/13/23 10:36		
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		09/09/23 13:47		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**186**	mg/L	20.0	20		09/20/23 21:45	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/20/23 21:32	16984-48-8	
Sulfate	**544**	mg/L	400	400		09/20/23 21:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-6-090623 **Lab ID: 60437062005** Collected: 09/06/23 12:30 Received: 09/07/23 16:30 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	**10.8**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:39	7440-42-8	
Calcium, Total Recoverable	**620**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:39	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**8240**	mg/L	200	1		09/13/23 10:36		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City							
pH at 25 Degrees C	**6.7**	Std. Units	0.10	1		09/09/23 13:38		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**1950**	mg/L	400	400		09/20/23 23:08	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/20/23 22:41	16984-48-8	
Sulfate	**2500**	mg/L	400	400		09/20/23 23:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-9-090623 **Lab ID: 60437062006** Collected: 09/06/23 15:15 Received: 09/07/23 16:30 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	**0.44**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:41	7440-42-8	
Calcium, Total Recoverable	**144**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:41	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**796**	mg/L	10.0	1		09/13/23 10:36		
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		09/12/23 15:08		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**49.0**	mg/L	20.0	20		09/20/23 23:35	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		09/20/23 23:21	16984-48-8	
Sulfate	**299**	mg/L	20.0	20		09/20/23 23:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JEC FGD CCR
Pace Project No.: 60437062

Sample: FGD-DUP-090623 **Lab ID: 60437062007** Collected: 09/06/23 13:10 Received: 09/07/23 16:30 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	**<0.10**	mg/L	0.10	1	09/14/23 12:10	09/18/23 13:43	7440-42-8	
Calcium, Total Recoverable	**103**	mg/L	0.20	1	09/14/23 12:10	09/18/23 13:43	7440-70-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Kansas City							
Total Dissolved Solids	**594**	mg/L	10.0	1		09/13/23 10:36		
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		09/09/23 13:44		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	**76.1**	mg/L	20.0	20		09/21/23 00:15	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	1		09/21/23 00:02	16984-48-8	
Sulfate	**92.0**	mg/L	20.0	20		09/21/23 00:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60437062

QC Batch: 864481
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: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

METHOD BLANK: 3422951 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	09/18/23 13:03	
Calcium	mg/L	<0.20	0.20	09/18/23 13:03	

LABORATORY CONTROL SAMPLE: 3422952

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	0.95	95	85-115	
Calcium	mg/L	10	10.4	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3422953 3422954

Parameter	Units	60437056001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.50	1	1	1.5	1.5	97	97	70-130	0	20	
Calcium	mg/L	232	10	10	242	242	102	102	70-130	0	20	

MATRIX SPIKE SAMPLE: 3422955

Parameter	Units	60437062001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	<0.10	1	1.0	95	70-130	
Calcium	mg/L	101	10	111	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60437062

QC Batch: 864208
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

METHOD BLANK: 3421941 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/13/23 10:33	

LABORATORY CONTROL SAMPLE: 3421942

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	996	100	80-120	

SAMPLE DUPLICATE: 3421943

Parameter	Units	60437056004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1320	1370	4	10	

SAMPLE DUPLICATE: 3421944

Parameter	Units	60436986003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	24500	25000	2	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60437062

QC Batch: 863862
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: 60437062001, 60437062004, 60437062005, 60437062007

SAMPLE DUPLICATE: 3420733

Parameter	Units	60437058001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.7	6.8	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60437062

QC Batch: 863911
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: 60437062002, 60437062003, 60437062006

SAMPLE DUPLICATE: 3421007

Parameter	Units	60437056001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	7.0	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JEC FGD CCR
Pace Project No.: 60437062

QC Batch: 865021
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: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

METHOD BLANK: 3425428 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/19/23 20:42	
Fluoride	mg/L	<0.20	0.20	09/19/23 20:42	
Sulfate	mg/L	<1.0	1.0	09/19/23 20:42	

METHOD BLANK: 3427934 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/21/23 09:49	
Fluoride	mg/L	<0.20	0.20	09/21/23 09:49	
Sulfate	mg/L	<1.0	1.0	09/21/23 09:49	

METHOD BLANK: 3428539 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/20/23 16:38	
Fluoride	mg/L	<0.20	0.20	09/20/23 16:38	
Sulfate	mg/L	<1.0	1.0	09/20/23 16:38	

METHOD BLANK: 3428677 Matrix: Water
Associated Lab Samples: 60437062001, 60437062002, 60437062003, 60437062004, 60437062005, 60437062006, 60437062007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/19/23 20:42	
Fluoride	mg/L	<0.20	0.20	09/19/23 20:42	
Sulfate	mg/L	<1.0	1.0	09/19/23 20:42	

LABORATORY CONTROL SAMPLE: 3425429

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.6	104	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.: 60437062

LABORATORY CONTROL SAMPLE: 3425429

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

LABORATORY CONTROL SAMPLE: 3427935

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

LABORATORY CONTROL SAMPLE: 3428540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	5	5.1	103	90-110	

LABORATORY CONTROL SAMPLE: 3428678

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3425430 3425431

Parameter	Units	60437054003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	109	100	100	203	206	94	97	80-120	2	15	
Fluoride	mg/L	<0.20	2.5	2.5	2.5	2.5	101	99	80-120	2	15	
Sulfate	mg/L	994	250	250	1290	1020	116	9	80-120	23	15	E,M1, R1

MATRIX SPIKE SAMPLE: 3425432

Parameter	Units	60437056002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	147	5	150	60	80-120	E,M1
Fluoride	mg/L	<0.20	2.5	1.8	70	80-120	M1
Sulfate	mg/L	686	5	681	-101	80-120	E,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

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(913)599-5665

QUALIFIERS

Project: JEC FGD CCR
Pace Project No.: 60437062

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC FGD CCR
Pace Project No.: 60437062

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60437062001	**FGD-1-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062002	**FGD-2-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062003	**FGD-3-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062004	**FGD-4-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062005	**FGD-6-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062006	**FGD-9-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062007	**FGD-DUP-090623**	EPA 200.7	864481	EPA 200.7	864587
60437062001	**FGD-1-090623**	SM 2540C	864208		
60437062002	**FGD-2-090623**	SM 2540C	864208		
60437062003	**FGD-3-090623**	SM 2540C	864208		
60437062004	**FGD-4-090623**	SM 2540C	864208		
60437062005	**FGD-6-090623**	SM 2540C	864208		
60437062006	**FGD-9-090623**	SM 2540C	864208		
60437062007	**FGD-DUP-090623**	SM 2540C	864208		
60437062001	**FGD-1-090623**	SM 4500-H+B	863862		
60437062002	**FGD-2-090623**	SM 4500-H+B	863911		
60437062003	**FGD-3-090623**	SM 4500-H+B	863911		
60437062004	**FGD-4-090623**	SM 4500-H+B	863862		
60437062005	**FGD-6-090623**	SM 4500-H+B	863862		
60437062006	**FGD-9-090623**	SM 4500-H+B	863911		
60437062007	**FGD-DUP-090623**	SM 4500-H+B	863862		
60437062001	**FGD-1-090623**	EPA 300.0	865021		
60437062002	**FGD-2-090623**	EPA 300.0	865021		
60437062003	**FGD-3-090623**	EPA 300.0	865021		
60437062004	**FGD-4-090623**	EPA 300.0	865021		
60437062005	**FGD-6-090623**	EPA 300.0	865021		
60437062006	**FGD-9-090623**	EPA 300.0	865021		
60437062007	**FGD-DUP-090623**	EPA 300.0	865021		

WO# : 60437062

60437062

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-LENE-0009_Sample C		
	Revision: 2	Effective Date: 01/12/2022	Issued By: Lenexa

Client Name: Evergy KS Central

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

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

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

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

Thermometer Used: T298 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 5.2/2.1 **Corr. Factor** -0.3 **Corrected** 4.9/1.8

Date and initials of person examining contents: pv 9/8/23

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#:** 67187	☑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: _____

Qualtrax Document ID: 30468

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

Company:	EVERGY KANSAS CENTRAL, INC.
Address:	Jeffrey Energy Center (JEC)
	818 Kansas Ave, Topeka, KS 66612
Email To:	skaney@haleyaldrich.com
Phone: 507-251-2232	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Samantha Kaney
Copy To:	Jake Humphrey, Laura Hines
Purchase Order No.:	
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:	Alice Spiller 913-563-1403
Pace Profile #:	9657, 8

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 pH	300: Cl, F, SO4	2540C TDS	Residual Chlorine (Y/N)
1	FGD-1-090623	WT	G	-	-	09/06/23	13:10	-	4	3		1						N	X	X	X	X	
2	FGD-2-090623	WT	G	-	-	09/06/23	14:50	-	4	3		1						N	X	X	X	X	
3	FGD-3-090623	WT	G	-	-	09/06/23	14:20	-	4	3		1						N	X	X	X	X	
4	FGD-4-090623	WT	G	-	-	09/06/23	13:55	-	4	3		1						N	X	X	X	X	
5	FGD-6-090623	WT	G	-	-	09/06/23	12:30	-	4	3		1						N	X	X	X	X	
6	FGD-9-090623	WT	G	-	-	09/06/23	15:15	-	4	3		1						N	X	X	X	X	
7	FGD-DUP-090623	WT	G	-	-	09/06/23	13:10	-	4	3		1						N	X	X	X	X	
8																							
9																							
10																							
11																							
12																							

Residual Chlorine (Y/N): 60437062 Pace Project No./ Lab I.D.

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	Jason R. Franks / SCS	9/7/23	16:00	JA Pace	9/7/23	1630	4.9	Y	N	Y
							1.8	X	N	X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason R. Franks

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/7/23

*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.

Client: Evergy KS Central Profile # 9657-8

Site: Notes

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JGFU	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other		
1	WT																		1		2		1									
2	↓																		↓		↓		↓									
3																																
4																																
5																																
6																																
7	↓																															
8																																
9																																
10																																
11																																
12																																

Container Codes

Glass			
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar
DG9H	40mL HCl amber voa vial	WGFU	4oz clear soil jar
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar
DG9Q	40mL TSP amber vial	JGFU	4oz unpreserved amber wide
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass
		AG5U	100mL unpres amber glass

Plastic	
BP1C	1L NAOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2C	500mL NAOH plastic
BP2N	500mL HNO3 plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3F	250mL HNO3 plastic - field filtered
BP3N	250mL HNO3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, Zn Acetate
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic
WPDU	16oz unpresserved plstic

Misc.	
I	Wipe/Swab
SP5T	120mL Coliform Na Thiosulfate
ZPLC	Ziploc Bag
AF	Air Filter
C	Air Cassettes
R	Terracore Kit
U	Summa Can

Matrix	
WT	Water
SL	Solid
NAL	Non-aqueous Liquid
OL	OIL
WP	Wipe
DW	Drinking Water

Work Order Number: 60437062