

2022 ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT
847 LANDFILL
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

by
Haley & Aldrich, Inc.
Cleveland, Ohio

for
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Topeka, Kansas

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1-2	March 2022 Semi-Annual Groundwater Assessment Monitoring Data Statistical Evaluation

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2-2	September 2022 Semi-Annual Sampling Event Laboratory Analytical Report

**2022 Annual Groundwater Monitoring
and Corrective Action Report**

This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring program for the Lawrence Energy Center (LEC) 847 Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2022) and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2022 Annual Groundwater Monitoring and Corrective Action Report for the LEC 847 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: Technical Expert 2
Company: Haley & Aldrich, Inc.



1. Introduction

This 2022 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the 847 Landfill (also known as Ash Landfill 847) at the Lawrence Energy Center (LEC), operated by Evergy Kansas Central, Inc. (Evergy). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency Coal Combustion Residual (CCR) Rule (Rule) effective October 19, 2015, including subsequent revisions, specifically Code of Federal Regulations Title 40 (40 CFR), subsection 257.90(e). The Annual Report documents the groundwater monitoring system for the 847 Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2022) 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 short 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, 2022), the 847 Landfill was operating under a detection monitoring program in compliance with 40 CFR § 257.94.

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, 2022), the 847 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):

**2022 Annual Groundwater Monitoring
and Corrective Action Report**

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 (2022). The statistical evaluation reports for semi-annual assessment monitoring sampling events from September 2021 and March 2022 were completed in January 2022 and July 2022, 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.

No SSIs over background were identified during the previous calendar year (2022); therefore, an assessment monitoring program was not initiated for the 847 Landfill in 2022.

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 847 Landfill remains in detection monitoring, and no appendix IV constituents were collected or analyzed in 2022. Therefore, no statistically significant levels above the groundwater protection standard were identified for the 847 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 2022 for this unit. The 847 Landfill remained in detection monitoring during 2022.

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 847 Landfill in 2022; therefore, a public meeting was not held.

**2022 Annual Groundwater Monitoring
and Corrective Action Report**

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 2022 for this unit. The 847 Landfill remained in detection monitoring during 2022.

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 847 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 2022.

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 LEC 847 Landfill. The 847 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 LEC 847 Landfill as required by the Rule. Groundwater sampling and analysis was conducted in accordance with 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 2022.

2.2.1 Status of the Groundwater Monitoring Program

The 847 Landfill remained in the detection monitoring program during 2022.

2022 Annual Groundwater Monitoring and Corrective Action Report

2.2.2 Key Actions Completed

The 2021 Annual Groundwater Monitoring and Corrective Action Report was completed in January 2022. Statistical evaluation was completed in January 2022 on analytical data from the September 2021 semi-annual detection monitoring sampling event. Semi-annual detection monitoring events were completed in March and September 2022. Statistical evaluation was completed in July 2022 on analytical data from the March 2022 semi-annual detection monitoring sampling event. Statistical evaluation of the results from the September 2022 semi-annual detection monitoring sampling event are due to be completed in January 2023 and will be reported in the next annual report.

2.2.3 Problems Encountered

Two problems encountered during groundwater monitoring activities in 2022 consisted of laboratory analytical errors that required the laboratory to reanalyze the following analytical results for the March and September 2022 semi-annual detection monitoring sampling events:

- Total dissolved solids for monitoring wells MW-31R and MW-35 during the March 2022 sampling event;
- Chloride for monitoring wells MW-33, MW-34, and MW-35 during the September 2022 sampling event; and
- Sulfate for monitoring well MW-35 during the September 2022 monitoring event.

These were the only issues that needed to be addressed at the 847 Landfill in 2022.

2.2.4 Actions to Resolve Problems

The resolution to problems encountered in 2022 included additional laboratory analyses as described above. The analytical results were revised accordingly. No other problems were encountered at the 847 Landfill in 2022; therefore, no actions to resolve problems were required.

2.2.5 Project Key Activities for Upcoming Year

Key activities planned for 2023 include completion of the 2022 Annual Groundwater Monitoring and Corrective Action Report, statistical evaluation of semi-annual detection monitoring analytical data collected in September 2022, 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 847 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 during 2022.

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 during 2022. A summary including the sample names, dates of sample collection, field parameters, and monitoring data obtained for the groundwater monitoring program for the 847 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 2022 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 2022. Only detection monitoring was conducted in 2022.

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 the activities completed in calendar year 2022.

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

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

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

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

The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority verifying the accuracy of the information in the report 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 2022; therefore, no demonstration or certification is applicable.

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

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

The 847 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 847 Landfill remains in detection monitoring, and no assessment monitoring samples were collected or analyzed in 2022. Consequently, Everygy 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 2022. The 847 Landfill remained in detection monitoring during 2022.

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 2022; therefore, no demonstration or certification is applicable for this unit.

TABLE

TABLE I
SUMMARY OF ANALYTICAL RESULTS - 2022 DETECTION MONITORING
EVERGY KANSAS CENTRAL, INC.
LAWRENCE ENERGY CENTER 847 LANDFILL
LAWRENCE, KANSAS

Location	Upgradient				Downgradient							
	MW-32		MW-35		MW-31R				MW-33		MW-34	
Measure Point (TOC)	861.96		862.52		857.67				855.44		871.96	
Sample Name	MW-32-031522	MW-32-090922	MW-35-031522	MW-35-090922	MW-31R-031522	DUP-847LF-031522	MW-31R-090922	DUP-847LF-090922	MW-33-031522	MW-33-090922	MW-34-031522	MW-34-090922
Sample Date	3/15/2022	9/9/2022	3/15/2022	9/9/2022	3/15/2022	3/15/2022	9/9/2022	9/9/2022	3/15/2022	9/9/2022	3/15/2022	9/9/2022
Final Lab Report Date	3/28/2022	9/23/2022	3/28/2022	9/23/2022	3/28/2022	3/28/2022	9/23/2022	9/23/2022	3/28/2022	9/23/2022	3/28/2022	9/23/2022
Final Lab Report Revision Date	5/3/2022	10/14/2022	5/3/2022	10/14/2022	5/3/2022	5/3/2022	10/14/2022	10/14/2022	5/3/2022	10/14/2022	5/3/2022	10/14/2022
Lab Data Reviewed and Accepted	5/9/2022	11/4/2022	5/9/2022	11/4/2022	5/9/2022	5/9/2022	11/4/2022	11/4/2022	5/9/2022	11/4/2022	5/9/2022	11/4/2022
Depth to Water (ft btoc)	45.93	46.31	48.20	48.74	42.14	-	42.21	-	39.83	40.26	56.50	56.62
Temperature (Deg C)	9.60	19.61	11.02	16.89	13.11	-	18.49	-	14.78	17.94	13.96	19.73
Conductivity (µS/cm)	972	864	3820	3590	1345	-	931	-	1990	1900	1800	1660
Turbidity (NTU)	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	2.5	0.0
pH, Field (su)	7.72	7.39	7.28	7.43	7.36	-	7.28	-	7.51	7.58	7.64	7.85
Boron, Total (mg/L)	0.17	0.17	1.8	1.8	0.55	0.55	0.55	0.55	1.5	1.5	2.0	2.0
Calcium, Total (mg/L)	60.9	57.3	564	521	245	237	237	235	261	242	211	191
Chloride (mg/L)	113	101	26600	17200	3850	4420	4050	4160	7510	9200	6720	9710
Fluoride (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sulfate (mg/L)	6.5	5.9	496	620	102	108	186	138	238	268	356	409
pH (su)	7.4	7.9	7.1	7.5	7.3	7.5	7.5	7.5	7.4	7.6	7.5	7.7
TDS (mg/L)	485	531	28800	27900	4670	4790	8380	8270	13100	14100	14400	13800





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
- NTU = Nephelometric Turbidity Unit
- su = standard unit
- TDS = total dissolved solids
- TOC = top of casing

FIGURES

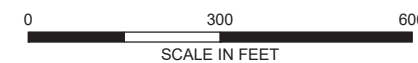


LEGEND

-  MONITORING WELL
-  WATER QUALITY ONLY
-  847 LANDFILL AREA
-  FUTURE 847 LANDFILL DISPOSAL AREA

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



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







**847 LANDFILL
MONITORING WELL
LOCATION MAP**

evergy JANUARY 2023

FIGURE 1

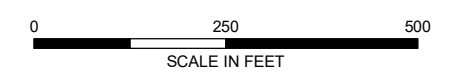


LEGEND

- MW-L** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), MARCH 2022
- 815.26** ABOVE MEAN SEA LEVEL (AMSL), MARCH 2022
-  MONITORING WELL
-  WATER QUALITY ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 0.20-FT INTERVAL (AMSL)
-  GROUNDWATER FLOW DIRECTION
-  847 LANDFILL
-  FUTURE 847 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 15 MARCH 2022.
3. MW-35 WAS NOT INCLUDED IN THE DATA SET USED TO CREATE THE DISPLAYED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION LINES.
4. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 15 MARCH 2022 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



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

847 LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
MARCH 15, 2022









JANUARY 2023

FIGURE 2

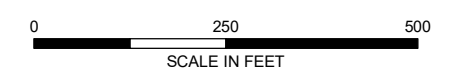


LEGEND

- MW-L** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2022
- 815.26**
-  MONITORING WELL
-  WATER QUALITY ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 0.20-FT INTERVAL (AMSL)
-  GROUNDWATER FLOW DIRECTION
-  847 LANDFILL
-  FUTURE 847 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 09 SEPTEMBER 2022.
3. MW-35 WAS NOT INCLUDED IN THE DATA SET USED TO CREATE THE DISPLAYED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION LINES.
4. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 09 SEPTEMBER 2022 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



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LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

847 LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
SEPTEMBER 09, 2022



JANUARY 2023

FIGURE 3

ATTACHMENT 1
Statistical Analyses

ATTACHMENT 1-1
September 2021 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, 2023
File No. 129778-037

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 2021 Semi-Annual Groundwater Detection Monitoring Data
Statistical Evaluation
Completed January 18, 2022
Lawrence Energy Center
847 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 2021** semi-annual detection monitoring groundwater sampling event for the Lawrence Energy Center (LEC) 847 Landfill. This semi-annual detection monitoring groundwater sampling event was completed on **September 15, 2021**, with laboratory results received and validated on **December 9, 2021**.

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

Statistical Evaluation of Appendix III Constituents

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

STATISTICAL EVALUATION

Either an interwell or intrawell evaluation was used to complete the statistical evaluation of the referenced data set. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data (MW-32 and MW-35), and the intrawell evaluation compares the most recent values from each compliance well against a background dataset composed of its own historical data.

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-32 and MW-35 for interwell evaluation) were combined to calculate the UPL for each 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 **September 2021 (interwell evaluation)** or through **September 2019 (intrawell evaluation)**.

RESULTS OF APPENDIX III DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the Appendix III constituents from the September 2021 semi-annual detection monitoring sampling event were compared to their respective background PLs (Table I). A sample concentration greater than the background UPL is considered to represent a SSI. Based on previous compliance sampling events, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for MW-34 for boron statistical evaluations. Interwell comparisons are being utilized for all other well and constituent evaluations. The results of the groundwater assessment monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation on groundwater sampling data collected in September 2021, no SSIs above background PLs occurred at the LEC 847 Landfill.**

Attachment:

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

TABLE

TABLE I
SUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATION
 SEPTEMBER 2021 SAMPLING EVENT
 LAWRENCE ENERGY CENTER 847 LANDFILL
 LAWRENCE, KANSAS

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 2021 Concentration (mg/L)	Interwell Analysis		Intrawell Analysis	
													Background Limits ¹ (UPL) mg/L	SSI	Background Limits ² (UPL) mg/L	SSI
CCR Appendix-III: Boron, Total (mg/L)																
MW-32	16/16	0%	-	0.2	0.000534	0.007307	0.04014	No	No	Stable		0.20	2.050			
MW-35	16/16	0%	-	2.05	0.01961	0.14	0.07649	Yes	No	Stable		1.8				
MW-31R	16/16	0%	-	0.75	0.01099	0.1048	0.167	No	No	Decreasing	Normal	0.74		No		
MW-33	16/16	0%	-	1.7	0.008573	0.09259	0.05731	No	No	Stable	Non-parametric	1.6		No		
MW-34	16/16	0%	-	2.2	0.01721	0.1312	0.06513	No	No	Increasing	Normal	2.1			2.508	No
CCR Appendix-III: Calcium, Total (mg/L)																
MW-32	16/16	0%	-	66.6	6.368	2.523	0.04245	No	No	Stable		66.6	545			
MW-35	16/16	0%	-	545	1287	35.87	0.07059	Yes	No	Stable		501				
MW-31R	16/16	0%	-	275	577.5	24.03	0.106	No	No	Stable	Normal	275		No		
MW-33	16/16	0%	-	267	173.7	13.18	0.05293	No	No	Stable	Normal	267		No		
MW-34	16/16	0%	-	243	251.7	15.86	0.07313	No	No	Decreasing	Normal	216		No		
CCR Appendix-III: Chloride (mg/L)																
MW-32	16/16	0%	-	113	41.29	6.426	0.06473	No	No	Increasing		108	16700			
MW-35	16/16	0%	-	16700	2005000	1416	0.0988	No	No	Stable		12100				
MW-31R	15/16	6%	1-1	5210	1272000	1128	0.2904	Yes	Yes	Stable	Normal	4530		No		
MW-33	16/16	0%	-	8700	442400	665.1	0.09115	Yes	No	Stable	Normal	6000		No		
MW-34	16/16	0%	-	6960	196200	442.9	0.07151	No	No	Stable	Normal	5380		No		
CCR Appendix-III: Fluoride (mg/L)																
MW-32	13/16	19%	0.2-0.2	0.38	0.00234	0.04837	0.193	No	No	Increasing		0.26	1.7			
MW-35	2/16	88%	0.1-10	1.6	6.049	2.46	2.589	Yes	No	Stable		< 0.20				
MW-31R	11/16	31%	0.2-0.2	0.73	0.03577	0.1891	0.4818	No	No	Stable	Normal	0.26		No		
MW-33	9/16	44%	0.2-0.2	1.5	0.283	0.5319	0.7702	No	No	Stable	Non-parametric	0.57		No		
MW-34	13/16	19%	0.2-0.2	1.9	0.3774	0.6143	0.5325	No	No	Stable	Normal	1.1		No		
CCR Appendix-III: pH (lab) (SU)																
MW-32	16/16	0%	-	7.9	0.02267	0.1506	0.01994	Yes	No	Stable		7.5	8.19			
MW-35	16/16	0%	-	7.4	0.01229	0.1109	0.01544	Yes	No	Stable		7.1				
MW-31R	16/16	0%	-	7.5	0.01263	0.1124	0.01538	Yes	No	Stable	Normal	7.3		No		
MW-33	16/16	0%	-	7.8	0.02629	0.1621	0.02182	Yes	No	Stable	Normal	7.5		No		
MW-34	16/16	0%	-	7.9	0.03129	0.1769	0.02329	No	No	Increasing	Normal	7.6		No		
CCR Appendix-III: Sulfate (mg/L)																
MW-32	16/16	0%	-	9.1	0.9447	0.9719	0.1404	No	No	Decreasing		6.4	666			
MW-35	16/16	0%	-	666	654.6	25.59	0.04095	No	No	Stable		617				
MW-31R	16/16	0%	-	187	710.7	26.66	0.1755	No	No	Stable	Normal	184		No		
MW-33	16/16	0%	-	462	2311	48.08	0.1525	Yes	No	Stable	Normal	297		No		
MW-34	16/16	0%	-	561	2091	45.73	0.09747	No	No	Stable	Normal	561		No		

TABLE I
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 SEPTEMBER 2021 SAMPLING EVENT
 LAWRENCE ENERGY CENTER 847 LANDFILL
 LAWRENCE, KANSAS

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 2021 Concentration (mg/L)	Interwell Analysis		Intrawell Analysis	
													Background Limits ¹ (UPL) mg/L	SSI	Background Limits ² (UPL) mg/L	SSI
CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)																
MW-32	16/16	0%	-	530	367.3	19.17	0.03846	No	No	Increasing		511	28600			
MW-35	16/16	0%	-	28600	38090000	6172	0.2578	Yes	No	Stable		26600				
MW-31R	16/16	0%	-	9270	900800	949.1	0.1274	No	No	Stable	Normal	9270		No		
MW-33	16/16	0%	-	14100	1241000	1114	0.08803	Yes	No	Stable	Normal	12800		No		
MW-34	16/16	0%	-	13000	5033000	2243	0.2075	Yes	No	Stable	Non-parametric	11100		No		

Notes and Abbreviations:

¹ Interwell background data collected from 08/16/2016 through 09/15/2021.

² Intrawell background data collected from 08/16/2016 through 09/03/2019.

CCR = coal combustion residuals

mg/L = milligrams per Liter

SSI = statistically significant increase

SU = standard unit

UPL = upper prediction limits

ATTACHMENT 1-2
March 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, 2023
File No. 129778-049

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

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

SUBJECT: March 2022 Semi-Annual Groundwater Detection Monitoring Data
Statistical Evaluation
Completed July 18, 2022
Lawrence Energy Center
847 Landfill

Pursuant to Code of Federal Regulations Title 40 (40 CFR) §§ 257.93 and 257.94 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the **March 2022** semi-annual detection monitoring groundwater sampling event for the Lawrence Energy Center (LEC) 847 Landfill. This semi-annual detection monitoring groundwater sampling event was completed on **March 15, 2022**, with laboratory results received and validated on **May 9, 2022**.

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.

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The Rule provides four specific options for statistical evaluation of groundwater quality data collected at the coal combustion residual (CCR) unit (40 CFR § 257.93(f)(1-4)). One statistical method used for these evaluations, the prediction limit (PL) method, was certified by Haley & Aldrich, Inc. on April 17, 2019. The PL method, as determined applicable for this sampling event, was used to evaluate potential SSIs above background. Background levels for each constituent listed in Appendix III (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids) were computed as upper prediction limits (UPLs), 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

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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.

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The groundwater analytical results for each sampling event from the background sample locations MW-32 and MW-35 (for interwell evaluation) were combined to calculate the UPL for each 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 **September 2021 (interwell and intrawell evaluation)**.

RESULTS OF APPENDIX III DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the Appendix III constituents from the March 2022 semi-annual detection monitoring sampling event were compared to their respective background PLs (Table I). A sample concentration greater than the background UPL is considered to represent a SSI. Based on previous compliance sampling events, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for MW-34 for boron statistical evaluations. Interwell comparisons are being utilized for all other well and constituent evaluations. The results of the groundwater assessment monitoring statistical evaluation are provided in Table I. **Based on this statistical evaluation of groundwater sampling data collected in March 2022, no SSIs above background PLs occurred at the LEC 847 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 2022 SAMPLING EVENT
LAWRENCE ENERGY CENTER 847 LANDFILL
LAWRENCE, KANSAS

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 2022 Concentration (mg/L)	Interwell Analysis		Intrawell Analysis	
													Background Limits ¹ (UPL) mg/L	SSI	Background Limits ² (UPL) mg/L	SSI
CCR Appendix-III: Boron, Total (mg/L)																
MW-32	17/17	0%	-	0.2	0.00005862	0.007656	0.04222	No	No	Stable		0.17	2.050			
MW-35	17/17	0%	-	2.05	0.01844	0.1358	0.07424	Yes	No	Stable		1.8				
MW-31R	17/17	0%	-	0.75	0.01065	0.1032	0.1656	Yes	No	Stable	Normal	0.55		No		
MW-33	17/17	0%	-	1.7	0.008824	0.09393	0.05839	No	No	Stable	Normal	1.5		No		
MW-34	17/17	0%	-	2.2	0.01615	0.1271	0.06311	No	No	Increasing	Normal	2.0			2.479	No
CCR Appendix-III: Calcium, Total (mg/L)																
MW-32	17/17	0%	-	66.6	6.095	2.469	0.04147	No	No	Stable		60.9	545			
MW-35	17/17	0%	-	564	1390	37.28	0.0729	Yes	No	Stable		564				
MW-31R	17/17	0%	-	275	561.2	23.69	0.104	No	No	Stable	Normal	245		No		
MW-33	17/17	0%	-	267	171.3	13.09	0.05242	No	No	Stable	Normal	261		No		
MW-34	17/17	0%	-	243	238	15.43	0.07123	No	No	Decreasing	Normal	211		No		
CCR Appendix-III: Chloride (mg/L)																
MW-32	17/17	0%	-	113	49.79	7.056	0.0705	No	No	Increasing		113	16700			
MW-35	17/17	0%	-	26600	10730000	3276	0.2176	No	No	Stable		26600				
MW-31R	16/17	6%	1-1	5210	1193000	1092	0.2813	Yes	No	Stable	Normal	3850		No		
MW-33	17/17	0%	-	8700	417400	646.1	0.08839	No	No	Decreasing	Normal	7510		No		
MW-34	17/17	0%	-	6960	200200	447.4	0.07187	No	No	Stable	Normal	6720		No		
CCR Appendix-III: Fluoride (mg/L)																
MW-32	13/17	24%	0.2-0.2	0.38	0.002344	0.04842	0.1955	No	No	Increasing		< 0.20	1.7			
MW-35	3/17	82%	0.1-0.2	1.7	0.3215	0.567	1.358	Yes	No	Stable		< 0.20				
MW-31R	11/17	35%	0.2-0.2	0.73	0.03571	0.189	0.4958	No	No	Stable	Normal	< 0.20		No		
MW-33	9/17	47%	0.2-0.2	1.5	0.2794	0.5286	0.7988	No	No	Stable	Non-parametric	< 0.20		No		
MW-34	13/17	24%	0.2-0.2	1.9	0.4073	0.6382	0.5815	No	No	Stable	Normal	< 0.20		No		
CCR Appendix-III: pH (lab) (SU)																
MW-32	17/17	0%	-	7.9	0.02257	0.1502	0.01992	Yes	No	Stable		7.4	8.19			
MW-35	17/17	0%	-	7.4	0.01191	0.1091	0.01521	Yes	No	Stable		7.1				
MW-31R	17/17	0%	-	7.5	0.01184	0.1088	0.01489	No	No	Stable	Normal	7.3		No		
MW-33	17/17	0%	-	7.8	0.02471	0.1572	0.02116	Yes	No	Stable	Non-parametric	7.4		No		
MW-34	17/17	0%	-	7.9	0.02985	0.1728	0.02277	No	No	Decreasing	Normal	7.5		No		
CCR Appendix-III: Sulfate (mg/L)																
MW-32	17/17	0%	-	9.1	0.8963	0.9467	0.1372	No	No	Decreasing		6.5	666			
MW-35	17/17	0%	-	666	1589	39.86	0.06458	No	No	Stable		496				
MW-31R	17/17	0%	-	187	813	28.51	0.1914	No	No	Stable	Normal	102		No		
MW-33	17/17	0%	-	462	2518	50.18	0.1615	Yes	No	Decreasing	Non-parametric	238		No		
MW-34	17/17	0%	-	561	2713	52.09	0.1126	No	No	Stable	Normal	356		No		

TABLE I
SUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATION
MARCH 2022 SAMPLING EVENT
LAWRENCE ENERGY CENTER 847 LANDFILL
LAWRENCE, KANSAS

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 2022 Concentration (mg/L)	Interwell Analysis		Intrawell Analysis	
													Background Limits ¹ (UPL) mg/L	SSI	Background Limits ² (UPL) mg/L	SSI
CCR Appendix-III: Total Dissolved Solids (TDS) (mg/L)																
MW-32	17/17	0%	-	530	354.9	18.84	0.03786	No	No	Increasing		485	28600			
MW-35	17/17	0%	-	28800	37100000	6091	0.2515	Yes	No	Stable		28800				
MW-31R	17/17	0%	-	9270	1298000	1139	0.1564	No	No	Stable	Normal	4670		No		
MW-33	17/17	0%	-	14100	1175000	1084	0.08548	Yes	No	Stable	Normal	13100		No		
MW-34	17/17	0%	-	14400	5476000	2340	0.2123	Yes	No	Stable	Non-parametric	14400		No		

Notes and Abbreviations:

¹ Interwell background data collected from 08/16/2016 through 09/15/2021.

² Intrawell background data collected from 08/16/2016 through 09/15/2021.

CCR = coal combustion residuals

mg/L = milligrams per Liter

SSI = statistically significant increase

SU = standard unit

UPL = upper prediction limits

ATTACHMENT 2
Laboratory Analytical Reports

ATTACHMENT 2-1
March 2022 Semi-Annual Sampling Event
Laboratory Analytical Report

May 03, 2022

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

RE: Project: LEC 847 LANDFILL CCR
Pace Project No.: 60395291

Dear Jake Humphrey:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Kansas City

REVISED_2 5/3/22 report re-analysis results for TDS.

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

Sincerely,



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

Enclosures

cc: Laura Hines, Eversource, Inc.
Tabitha Hylton, Eversource Kansas Central, Inc. Lawrence
Energy Center
Samantha Kaney, Haley & Aldrich
Melissa Michels, Eversource, Inc.
Jared Morrison, Eversource, Inc.
Danielle Oberbroeckling, Haley & Aldrich
Danielle Oberbroeckling, Haley Aldrich
Zach Phillips, Eversource, Inc.
Melanie Sataneck, Haley & Aldrich, Inc.



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 20-020-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60395291001	MW-31R-031522	Water	03/15/22 11:25	03/15/22 17:30
60395291002	MW-32-031522	Water	03/15/22 10:15	03/15/22 17:30
60395291003	MW-33-031522	Water	03/15/22 13:20	03/15/22 17:30
60395291004	MW-34-031522	Water	03/15/22 12:35	03/15/22 17:30
60395291005	MW-35-031522	Water	03/15/22 09:10	03/15/22 17:30
60395291006	DUP-847LF-031522	Water	03/15/22 11:25	03/15/22 17:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60395291001	MW-31R-031522	EPA 200.7	JLH	2	PASI-K
		SM 2540C	SK	1	PASI-K
		SM 4500-H+B	SK	1	PASI-K
60395291002	MW-32-031522	EPA 300.0	CRN2, KB	3	PASI-K
		EPA 200.7	JLH	2	PASI-K
		SM 2540C	TNB	1	PASI-K
60395291003	MW-33-031522	SM 4500-H+B	SK	1	PASI-K
		EPA 300.0	CRN2, KB	3	PASI-K
		EPA 200.7	JLH	2	PASI-K
60395291004	MW-34-031522	SM 2540C	SK	1	PASI-K
		SM 4500-H+B	SK	1	PASI-K
		EPA 300.0	CRN2, KB	3	PASI-K
60395291005	MW-35-031522	EPA 200.7	JLH	2	PASI-K
		SM 2540C	SK	1	PASI-K
		SM 4500-H+B	SK	1	PASI-K
60395291006	DUP-847LF-031522	EPA 300.0	CRN2, KB	3	PASI-K
		EPA 200.7	JLH	2	PASI-K
		SM 2540C	TNB	1	PASI-K
		SM 4500-H+B	SK	1	PASI-K
		EPA 300.0	CRN2, KB	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR
Pace Project No.: 60395291

Method: EPA 200.7
Description: 200.7 Metals, Total
Client: Evergy Kansas Central, Inc.
Date: May 03, 2022

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 776419

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60394690001,60395291003

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

- MS (Lab ID: 3098520)
- Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: Evergy Kansas Central, Inc.

Date: May 03, 2022

General Information:

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

Hold Time:

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

H1: Analysis conducted outside the EPA method holding time.

- MW-31R-031522 (Lab ID: 60395291001)
- MW-32-031522 (Lab ID: 60395291002)
- MW-33-031522 (Lab ID: 60395291003)

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

- MW-35-031522 (Lab ID: 60395291005)

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: Evergy Kansas Central, Inc.

Date: May 03, 2022

General Information:

6 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-847LF-031522 (Lab ID: 60395291006)
- MW-31R-031522 (Lab ID: 60395291001)
- MW-32-031522 (Lab ID: 60395291002)
- MW-33-031522 (Lab ID: 60395291003)
- MW-34-031522 (Lab ID: 60395291004)
- MW-35-031522 (Lab ID: 60395291005)

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: Evergy Kansas Central, Inc.

Date: May 03, 2022

General Information:

6 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.

Duplicate Sample:

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

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-31R-031522 Lab ID: 60395291001 Collected: 03/15/22 11:25 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.55	mg/L	0.10	1	03/18/22 14:46	03/21/22 13:45	7440-42-8	
Calcium, Total Recoverable	245	mg/L	0.60	3	03/18/22 14:46	03/21/22 18:22	7440-70-2	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	4670	mg/L	167	1		04/27/22 16:08		H1
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.3	Std. Units	0.10	1		03/23/22 13:54		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	3850	mg/L	400	400		03/22/22 05:53	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 05:38	16984-48-8	
Sulfate	102	mg/L	20.0	20		03/22/22 21:34	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-32-031522 Lab ID: 60395291002 Collected: 03/15/22 10:15 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.17	mg/L	0.10	1	03/18/22 14:46	03/21/22 13:48	7440-42-8	
Calcium, Total Recoverable	60.9	mg/L	0.20	1	03/18/22 14:46	03/21/22 13:48	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	485	mg/L	10.0	1		03/24/22 18:33		H1
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		03/23/22 13:44		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	113	mg/L	20.0	20		03/22/22 21:48	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 06:07	16984-48-8	
Sulfate	6.5	mg/L	1.0	1		03/22/22 06:07	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-33-031522 Lab ID: 60395291003 Collected: 03/15/22 13:20 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	1.5	mg/L	0.50	5	03/18/22 14:46	03/21/22 14:31	7440-42-8	
Calcium, Total Recoverable	261	mg/L	1.0	5	03/18/22 14:46	03/21/22 14:31	7440-70-2	M1
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	13100	mg/L	1000	1		04/27/22 16:08		H1
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		03/24/22 10:04		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	7510	mg/L	400	400		03/22/22 01:10	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 00:56	16984-48-8	
Sulfate	238	mg/L	50.0	50		03/23/22 02:25	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-34-031522 Lab ID: 60395291004 Collected: 03/15/22 12:35 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	2.0	mg/L	0.50	5	03/18/22 14:46	03/21/22 14:36	7440-42-8	
Calcium, Total Recoverable	211	mg/L	1.0	5	03/18/22 14:46	03/21/22 14:36	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	14400	mg/L	500	1		03/21/22 16:37		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.5	Std. Units	0.10	1		03/24/22 10:01		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	6720	mg/L	400	400		03/22/22 01:38	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 01:24	16984-48-8	
Sulfate	356	mg/L	50.0	50		03/23/22 02:39	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-35-031522 Lab ID: 60395291005 Collected: 03/15/22 09:10 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	1.8	mg/L	1.0	10	03/18/22 14:46	03/21/22 14:38	7440-42-8	
Calcium, Total Recoverable	564	mg/L	2.0	10	03/18/22 14:46	03/21/22 14:38	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	28800	mg/L	2000	1		04/27/22 16:08		H5
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		03/23/22 13:33		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	26600	mg/L	2000	2000		03/23/22 03:06	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 01:52	16984-48-8	
Sulfate	496	mg/L	100	100		03/23/22 02:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: DUP-847LF-031522 Lab ID: 60395291006 Collected: 03/15/22 11:25 Received: 03/15/22 17:30 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.55	mg/L	0.10	1	03/18/22 14:46	03/21/22 13:59	7440-42-8	
Calcium, Total Recoverable	237	mg/L	0.60	3	03/18/22 14:46	03/21/22 18:28	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	4790	mg/L	143	1		03/21/22 16:37		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.5	Std. Units	0.10	1		03/24/22 09:54		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	4420	mg/L	400	400		03/22/22 02:34	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		03/22/22 02:20	16984-48-8	
Sulfate	108	mg/L	10.0	10		03/23/22 03:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch: 776419 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

METHOD BLANK: 3098516 Matrix: Water
 Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	03/21/22 13:14	
Calcium	mg/L	<0.20	0.20	03/21/22 13:14	

LABORATORY CONTROL SAMPLE: 3098517

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3098518 3098519

Parameter	Units	60394690001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	430 ug/L	1	1	1.4	1.4	97	96	70-130	1	20	
Calcium	mg/L	24500 ug/L	10	10	35.8	35.0	113	105	70-130	2	20	

MATRIX SPIKE SAMPLE: 3098520

Parameter	Units	60395291003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1.5	1	2.4	88	70-130	
Calcium	mg/L	261	10	265	33	70-130 M1	

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR
Pace Project No.: 60395291

QC Batch: 776850	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291004, 60395291006

METHOD BLANK: 3099914 Matrix: Water

Associated Lab Samples: 60395291004, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/21/22 16:36	

LABORATORY CONTROL SAMPLE: 3099915

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	979	98	80-120	

SAMPLE DUPLICATE: 3099916

Parameter	Units	60395176007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1630	1640	0	10	

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch: 777585	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291002

METHOD BLANK: 3102581 Matrix: Water

Associated Lab Samples: 60395291002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	03/24/22 18:31	

LABORATORY CONTROL SAMPLE: 3102582

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

SAMPLE DUPLICATE: 3102585

Parameter	Units	60395342005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	952	865	10	10	

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch:	783698	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291001, 60395291003, 60395291005

METHOD BLANK: 3125160 Matrix: Water

Associated Lab Samples: 60395291001, 60395291003, 60395291005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	04/27/22 16:08	

LABORATORY CONTROL SAMPLE: 3125161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	982	98	80-120	

SAMPLE DUPLICATE: 3125162

Parameter	Units	60395291001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4670	4580	2	10	H1

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch: 777233

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291001, 60395291002, 60395291005

SAMPLE DUPLICATE: 3101235

Parameter	Units	60395027001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	9.2	9.2	0	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch: 777234

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291003, 60395291004, 60395291006

SAMPLE DUPLICATE: 3101236

Parameter	Units	60395291006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.3	3	5	H6

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

QC Batch: 776430

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

METHOD BLANK: 3098553

Matrix: Water

Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/22/22 01:24	
Fluoride	mg/L	<0.20	0.20	03/22/22 01:24	
Sulfate	mg/L	<1.0	1.0	03/22/22 01:24	

METHOD BLANK: 3100179

Matrix: Water

Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/21/22 07:11	
Fluoride	mg/L	<0.20	0.20	03/21/22 07:11	
Sulfate	mg/L	<1.0	1.0	03/21/22 07:11	

METHOD BLANK: 3100401

Matrix: Water

Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/22/22 09:01	
Fluoride	mg/L	<0.20	0.20	03/22/22 09:01	
Sulfate	mg/L	<1.0	1.0	03/22/22 09:01	

METHOD BLANK: 3102305

Matrix: Water

Associated Lab Samples: 60395291001, 60395291002, 60395291003, 60395291004, 60395291005, 60395291006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	03/22/22 13:22	
Fluoride	mg/L	<0.20	0.20	03/22/22 13:22	
Sulfate	mg/L	<1.0	1.0	03/22/22 13:22	

LABORATORY CONTROL SAMPLE: 3098554

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	99	90-110	
Fluoride	mg/L	2.5	2.5	100	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

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

LABORATORY CONTROL SAMPLE: 3098554

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

LABORATORY CONTROL SAMPLE: 3100180

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	91	90-110	
Fluoride	mg/L	2.5	2.4	96	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 3100402

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	91	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	4.7	95	90-110	

LABORATORY CONTROL SAMPLE: 3102306

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	98	90-110	
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3098555 3098556

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60395185002 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	288	1000	1000	1150	1150	87	87	80-120	0	15		
Fluoride	mg/L	ND	500	500	536	538	107	108	80-120	0	15		
Sulfate	mg/L	1940	1000	1000	2870	2890	93	95	80-120	1	15		

SAMPLE DUPLICATE: 3098557

Parameter	Units	60395185002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	288	279	3	15	
Fluoride	mg/L	ND	<40.0		15	
Sulfate	mg/L	1940	1910	2	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.

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QUALIFIERS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

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

H1 Analysis conducted outside the EPA method holding time.

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

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60395291

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60395291001	MW-31R-031522	EPA 200.7	776419	EPA 200.7	776589
60395291002	MW-32-031522	EPA 200.7	776419	EPA 200.7	776589
60395291003	MW-33-031522	EPA 200.7	776419	EPA 200.7	776589
60395291004	MW-34-031522	EPA 200.7	776419	EPA 200.7	776589
60395291005	MW-35-031522	EPA 200.7	776419	EPA 200.7	776589
60395291006	DUP-847LF-031522	EPA 200.7	776419	EPA 200.7	776589
60395291001	MW-31R-031522	SM 2540C	783698		
60395291002	MW-32-031522	SM 2540C	777585		
60395291003	MW-33-031522	SM 2540C	783698		
60395291004	MW-34-031522	SM 2540C	776850		
60395291005	MW-35-031522	SM 2540C	783698		
60395291006	DUP-847LF-031522	SM 2540C	776850		
60395291001	MW-31R-031522	SM 4500-H+B	777233		
60395291002	MW-32-031522	SM 4500-H+B	777233		
60395291003	MW-33-031522	SM 4500-H+B	777234		
60395291004	MW-34-031522	SM 4500-H+B	777234		
60395291005	MW-35-031522	SM 4500-H+B	777233		
60395291006	DUP-847LF-031522	SM 4500-H+B	777234		
60395291001	MW-31R-031522	EPA 300.0	776430		
60395291002	MW-32-031522	EPA 300.0	776430		
60395291003	MW-33-031522	EPA 300.0	776430		
60395291004	MW-34-031522	EPA 300.0	776430		
60395291005	MW-35-031522	EPA 300.0	776430		
60395291006	DUP-847LF-031522	EPA 300.0	776430		

REPORT OF LABORATORY ANALYSIS

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WO#: 60395291



DC#_ Title: ENV-FRM-LENE-0009_Sample C



Revision: 2

Effective Date: 01/12/2022

ISSUED BY: LEMMA

Client Name: Energy Kansas Central, Inc.

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other ZPC

Thermometer Used: T299 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.0 Corr. Factor -0.2 Corrected 2.8

Date and initials of person examining contents: D.W 3/17/22

Temperature should be above freezing to 6°C

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

LOT#: 55192

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: **Reviewed**
by Angie Brown Mar 17, 2022

Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:			
Company: EVERGY KANSAS CENTRAL, INC.		Report To: Melissa Michels, Samantha Kaney, Danielle Ober		Attention: Accounts Payable			
Address: Lawrence Energy Center (LEC)		Copy To: Jared Morrison, Jake Humphrey, Laura Hines		Company Name: EVERGY KANSAS CENTRAL, INC		REGULATORY AGENCY	
818 Kansas Ave, Topeka, KS 66612				Address: SAME AS A			
Email To: melissa.michels@evergy.com		Purchase Order No.:		<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER			
Phone: 785-575-8113	Fax:	Project Name: LEC 847 Landfill CCR		Pace Quote Reference: Alice Spiller, 913-563-1403		Site Location	
Requested Due Date/TAT: 7 day		Project Number:		Pace Profile #: 9655, 2		STATE: KS	

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)																				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test	200.7 Total B, Ca	300: Cl, F, SO ₄	2540C TDS	4500 H+B pH																												
					DATE	TIME	DATE	TIME																																											
1	MW-31R-031522	WT	G	-	-	03/15/22	11:25	-	4	3	1									X	X	X	X																												
2	MW-32-031522	WT	G	-	-	03/15/22	10:15	-	4	3	1									X	X	X	X																												
3	MW-33-031522	WT	G	-	-	03/15/22	13:20	-	4	3	1									X	X	X	X																												
4	MW-34-031522	WT	G	-	-	03/15/22	12:35	-	4	3	1									X	X	X	X																												
5	MW-35-031522	WT	G	-	-	03/15/22	9:10	-	4	3	1									X	X	X	X																												
6	DUP-847LF-031522	WT	G	-	-	03/15/22	11:25	-	4	3	1									X	X	X	X																												
7																																																			
8																																																			
9																																																			
10																																																			
11																																																			
12																																																			

60395291

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS							
	Jason R. Franks / SCS	3/15/22	1730	<i>Jason R. Franks</i> / Pace	3/15/22	1730	2-8	Y	N	Y				

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Jason R. Franks						
SIGNATURE of SAMPLER: <i>Jason R. Franks</i>		DATE Signed (MM/DD/YY): 3/15/22				

Client: Energy Kansas Central, Inc.
 Site: LEC 847 Landfill CCR

Profile # 9655, 2
 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																															
2																																
3																																
4																																
5																																
6																																
7																																
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 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 unres 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				
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 unpreserved plastic				

WO#: 60395291
 Work Order Number:
PM: AS Due Date: 03/25/22
CLIENT: WESTAR ENRGY

ATTACHMENT 2-2
September 2022 Semi-Annual Sampling Event
Laboratory Analytical Report

October 14, 2022

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

RE: Project: LEC 847 LANDFILL CCR
Pace Project No.: 60410045

Dear Jake Humphrey:

Enclosed are the analytical results for sample(s) received by the laboratory on September 09, 2022. 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

REVISION_1 10/4/22

REVISION_2 10/14/22

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

Sincerely,



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

Enclosures

cc: Laura Hines, Evergy, Inc.
Samantha Kaney, Haley & Aldrich
Melissa Michels, Evergy, Inc.
Danielle Oberbroeckling, Haley & Aldrich
Danielle Oberbroeckling, Haley Aldrich



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Arkansas Drinking Water

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212020-2

Oklahoma Certification #: 9205/9935

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212019-9

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60410045001	MW-31R-090922	Water	09/09/22 12:10	09/09/22 17:00
60410045002	MW-32-090922	Water	09/09/22 11:10	09/09/22 17:00
60410045003	MW-33-090922	Water	09/09/22 13:10	09/09/22 17:00
60410045004	MW-34-090922	Water	09/09/22 14:00	09/09/22 17:00
60410045005	MW-35-090922	Water	09/09/22 10:05	09/09/22 17:00
60410045006	DUP-847LF-090922	Water	09/09/22 12:15	09/09/22 17:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60410045001	MW-31R-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60410045002	MW-32-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60410045003	MW-33-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60410045004	MW-34-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60410045005	MW-35-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2, RKA	3	PASI-K
60410045006	DUP-847LF-090922	EPA 200.7	MRV	2	PASI-K
		SM 2540C	TML	1	PASI-K
		SM 4500-H+B	ET	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Date: October 14, 2022

Amended to include reanalysis and/or review of the chloride and sulfate.

Amended 10/14/22 to reflect updates to chloride data review for sample 60410045005. New data is reported from the correct dilution.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: Evergy Kansas Central, Inc.

Date: October 14, 2022

General Information:

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

Hold Time:

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

Sample Preparation:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 807692

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60410087001,60410087002

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

- MS (Lab ID: 3213099)
 - Boron
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: Evergy Kansas Central, Inc.

Date: October 14, 2022

General Information:

6 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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: Evergy Kansas Central, Inc.

Date: October 14, 2022

General Information:

6 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-847LF-090922 (Lab ID: 60410045006)
- MW-31R-090922 (Lab ID: 60410045001)
- MW-32-090922 (Lab ID: 60410045002)
- MW-33-090922 (Lab ID: 60410045003)
- MW-34-090922 (Lab ID: 60410045004)
- MW-35-090922 (Lab ID: 60410045005)

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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: Evergy Kansas Central, Inc.

Date: October 14, 2022

General Information:

6 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: 808515

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 6041000004,6041003004

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

- MS (Lab ID: 3216066)
 - Chloride
- MSD (Lab ID: 3216067)
 - Chloride
 - Fluoride

Additional Comments:

Analyte Comments:

QC Batch: 808515

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

- MS (Lab ID: 3216066)
 - Chloride
- MS (Lab ID: 3216068)
 - Sulfate
- MSD (Lab ID: 3216067)
 - Chloride

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-31R-090922 Lab ID: 60410045001 Collected: 09/09/22 12:10 Received: 09/09/22 17:00 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.55	mg/L	0.10	1	09/14/22 15:20	09/19/22 15:05	7440-42-8	
Calcium, Total Recoverable	237	mg/L	0.20	1	09/14/22 15:20	09/19/22 15:05	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	8380	mg/L	250	1		09/16/22 17:10		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.5	Std. Units	0.10	1		09/14/22 11:20		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	4050	mg/L	500	500		09/21/22 20:02	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 19:36	16984-48-8	
Sulfate	186	mg/L	10.0	10		09/21/22 19:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-32-090922		Lab ID: 60410045002		Collected: 09/09/22 11:10	Received: 09/09/22 17:00	Matrix: Water		
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.17	mg/L	0.10	1	09/14/22 15:20	09/19/22 15:08	7440-42-8	
Calcium, Total Recoverable	57.3	mg/L	0.20	1	09/14/22 15:20	09/19/22 15:08	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		09/16/22 17:10		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.9	Std. Units	0.10	1		09/14/22 11:20		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	101	mg/L	10.0	10		09/21/22 20:52	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 20:14	16984-48-8	
Sulfate	5.9	mg/L	1.0	1		09/21/22 20:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-33-090922								
Lab ID: 60410045003								
Collected: 09/09/22 13:10 Received: 09/09/22 17:00 Matrix: Water								
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Boron, Total Recoverable	1.5	mg/L	0.10	1	09/14/22 15:20	09/19/22 15:10	7440-42-8	
Calcium, Total Recoverable	242	mg/L	0.20	1	09/14/22 15:20	09/19/22 15:10	7440-70-2	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	14100	mg/L	1000	1		09/16/22 17:10		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.6	Std. Units	0.10	1		09/14/22 11:20		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	9200	mg/L	1000	1000		09/22/22 22:28	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 18:40	16984-48-8	
Sulfate	268	mg/L	50.0	50		09/21/22 19:06	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-34-090922 Lab ID: 60410045004 Collected: 09/09/22 14:00 Received: 09/09/22 17:00 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	2.0	mg/L	0.10	1	09/14/22 15:20	09/19/22 15:12	7440-42-8	
Calcium, Total Recoverable	191	mg/L	0.20	1	09/14/22 15:20	09/19/22 15:12	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	13800	mg/L	1000	1		09/16/22 17:10		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.7	Std. Units	0.10	1		09/14/22 11:20		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	9710	mg/L	1000	1000		09/22/22 22:43	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 19:18	16984-48-8	
Sulfate	409	mg/L	50.0	50		09/21/22 19:43	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-35-090922 Lab ID: 60410045005 Collected: 09/09/22 10:05 Received: 09/09/22 17:00 Matrix: Water								
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City								
Boron, Total Recoverable	1.8	mg/L	0.20	2	09/14/22 15:20	09/19/22 16:47	7440-42-8	
Calcium, Total Recoverable	521	mg/L	0.40	2	09/14/22 15:20	09/19/22 16:47	7440-70-2	
2540C Total Dissolved Solids Analytical Method: SM 2540C Pace Analytical Services - Kansas City								
Total Dissolved Solids	27900	mg/L	1000	1		09/16/22 17:10		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.5	Std. Units	0.10	1		09/16/22 11:53		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City								
Chloride	17200	mg/L	5000	5000		09/22/22 23:26	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 20:21	16984-48-8	
Sulfate	620	mg/L	50.0	50		09/28/22 21:19	14808-79-8	

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ANALYTICAL RESULTS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: DUP-847LF-090922 Lab ID: 60410045006 Collected: 09/09/22 12:15 Received: 09/09/22 17:00 Matrix: Water								
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Pace Analytical Services - Kansas City								
Boron, Total Recoverable	0.55	mg/L	0.10	1	09/14/22 15:20	09/19/22 15:22	7440-42-8	
Calcium, Total Recoverable	235	mg/L	0.20	1	09/14/22 15:20	09/19/22 15:22	7440-70-2	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Pace Analytical Services - Kansas City								
Total Dissolved Solids	8270	mg/L	333	1		09/16/22 17:11		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
Pace Analytical Services - Kansas City								
pH at 25 Degrees C	7.5	Std. Units	0.10	1		09/14/22 11:20		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Pace Analytical Services - Kansas City								
Chloride	4160	mg/L	500	500		09/22/22 23:41	16887-00-6	
Fluoride	<0.20	mg/L	0.20	1		09/21/22 20:59	16984-48-8	
Sulfate	138	mg/L	50.0	50		09/21/22 21:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch: 807692 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Laboratory: Pace Analytical Services - Kansas City
 Associated Lab Samples: 60410045001, 60410045002, 60410045003, 60410045004, 60410045005, 60410045006

METHOD BLANK: 3213095 Matrix: Water
 Associated Lab Samples: 60410045001, 60410045002, 60410045003, 60410045004, 60410045005, 60410045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	<0.10	0.10	09/19/22 14:20	
Calcium	mg/L	<0.20	0.20	09/19/22 14:20	

LABORATORY CONTROL SAMPLE: 3213096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	9.9	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3213097 3213098

Parameter	Units	60410087001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.39	1	1	1.4	1.4	99	100	70-130	1	20	
Calcium	mg/L	196	10	10	204	206	85	100	70-130	1	20	

MATRIX SPIKE SAMPLE: 3213099

Parameter	Units	60410087002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	0.59	1	4.8	420	70-130	M1
Calcium	mg/L	225	10	449	2240	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch:	808022	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045001, 60410045002, 60410045003, 60410045004, 60410045005, 60410045006

METHOD BLANK: 3214376 Matrix: Water
Associated Lab Samples: 60410045001, 60410045002, 60410045003, 60410045004, 60410045005, 60410045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/16/22 17:09	

LABORATORY CONTROL SAMPLE: 3214377

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

SAMPLE DUPLICATE: 3214378

Parameter	Units	60409977004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1950	1850	5	10	

SAMPLE DUPLICATE: 3214379

Parameter	Units	60410045005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	27900	28300	1	10	

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch: 807539

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045001, 60410045002, 60410045003, 60410045004, 60410045006

SAMPLE DUPLICATE: 3212485

Parameter	Units	60410032019 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.8	1	5	H6

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch: 807931

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045005

SAMPLE DUPLICATE: 3214114

Parameter	Units	60410030003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.6	3	5	H6

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch:	808515	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045001, 60410045002

METHOD BLANK: 3216064 Matrix: Water

Associated Lab Samples: 60410045001, 60410045002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/20/22 09:08	
Fluoride	mg/L	<0.20	0.20	09/20/22 09:08	
Sulfate	mg/L	<1.0	1.0	09/20/22 09:08	

METHOD BLANK: 3218088 Matrix: Water

Associated Lab Samples: 60410045001, 60410045002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/21/22 08:57	
Fluoride	mg/L	<0.20	0.20	09/21/22 08:57	
Sulfate	mg/L	<1.0	1.0	09/21/22 08:57	

LABORATORY CONTROL SAMPLE: 3216065

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	100	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

LABORATORY CONTROL SAMPLE: 3218089

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	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3216066 3216067

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60410000004	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	137	50	50	227	207	179	140	80-120	9	15 E,M1
Fluoride	mg/L	<0.20			2.9	3.1				7	15 M1
Sulfate	mg/L	18.7	500	500	1500	1510	297	297	80-120	0	15

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

MATRIX SPIKE SAMPLE:		3216068		60410030004		Spike Conc.		MS Result		MS % Rec		% Rec Limits		Qualifiers	
Parameter	Units	Result	Conc.	Result	% Rec	Result	% Rec	Limit	Limit	Qualifier					
Chloride	mg/L	248	250	484	94	80	120								
Fluoride	mg/L	0.63		3.4											
Sulfate	mg/L			2070											E

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch: 808656

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045003, 60410045004, 60410045005, 60410045006

METHOD BLANK: 3216506

Matrix: Water

Associated Lab Samples: 60410045003, 60410045004, 60410045005, 60410045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/21/22 16:21	
Fluoride	mg/L	<0.20	0.20	09/21/22 16:21	
Sulfate	mg/L	<1.0	1.0	09/21/22 16:21	

METHOD BLANK: 3218103

Matrix: Water

Associated Lab Samples: 60410045003, 60410045004, 60410045005, 60410045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/21/22 08:57	
Fluoride	mg/L	<0.20	0.20	09/21/22 08:57	
Sulfate	mg/L	<1.0	1.0	09/21/22 08:57	

METHOD BLANK: 3219013

Matrix: Water

Associated Lab Samples: 60410045003, 60410045004, 60410045005, 60410045006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/23/22 01:38	
Fluoride	mg/L	<0.20	0.20	09/23/22 01:38	
Sulfate	mg/L	<1.0	1.0	09/23/22 01:38	

LABORATORY CONTROL SAMPLE: 3216507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	5	4.7	94	90-110	

LABORATORY CONTROL SAMPLE: 3218104

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	4.8	96	90-110	

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

LABORATORY CONTROL SAMPLE: 3219014

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	105	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3216508 3216509

Parameter	Units	60409930004		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	85.2	100	100	185	184	100	98	80-120	1	15		
Fluoride	mg/L	ND	50	50	43.5	43.4	87	87	80-120	0	15		
Sulfate	mg/L	ND	100	100	116	115	97	96	80-120	1	15		

MATRIX SPIKE SAMPLE: 3216510

Parameter	Units	60410087001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	109	50	159	101	80-120	
Fluoride	mg/L	0.25		2.2			
Sulfate	mg/L	427	250	665	95	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

QC Batch: 810065

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60410045005

METHOD BLANK: 3221833

Matrix: Water

Associated Lab Samples: 60410045005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<1.0	1.0	09/28/22 20:53	

LABORATORY CONTROL SAMPLE: 3221834

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	97	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.

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QUALIFIERS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60410045

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60410045001	MW-31R-090922	EPA 200.7	807692	EPA 200.7	807723
60410045002	MW-32-090922	EPA 200.7	807692	EPA 200.7	807723
60410045003	MW-33-090922	EPA 200.7	807692	EPA 200.7	807723
60410045004	MW-34-090922	EPA 200.7	807692	EPA 200.7	807723
60410045005	MW-35-090922	EPA 200.7	807692	EPA 200.7	807723
60410045006	DUP-847LF-090922	EPA 200.7	807692	EPA 200.7	807723
60410045001	MW-31R-090922	SM 2540C	808022		
60410045002	MW-32-090922	SM 2540C	808022		
60410045003	MW-33-090922	SM 2540C	808022		
60410045004	MW-34-090922	SM 2540C	808022		
60410045005	MW-35-090922	SM 2540C	808022		
60410045006	DUP-847LF-090922	SM 2540C	808022		
60410045001	MW-31R-090922	SM 4500-H+B	807539		
60410045002	MW-32-090922	SM 4500-H+B	807539		
60410045003	MW-33-090922	SM 4500-H+B	807539		
60410045004	MW-34-090922	SM 4500-H+B	807539		
60410045005	MW-35-090922	SM 4500-H+B	807931		
60410045006	DUP-847LF-090922	SM 4500-H+B	807539		
60410045001	MW-31R-090922	EPA 300.0	808515		
60410045002	MW-32-090922	EPA 300.0	808515		
60410045003	MW-33-090922	EPA 300.0	808656		
60410045004	MW-34-090922	EPA 300.0	808656		
60410045005	MW-35-090922	EPA 300.0	808656		
60410045005	MW-35-090922	EPA 300.0	810065		
60410045006	DUP-847LF-090922	EPA 300.0	808656		

REPORT OF LABORATORY ANALYSIS

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Pace
ANALYTICAL SERVICES

DC#_Title: ENV-FRM-LENE-0009_Sa

Revision: 2 Effective Date: 01/12

WO# : 60410045



60410045

Client Name: Energy

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

Tracking #: _____ Pace Shipping Label Used? Yes No

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other foam

Thermometer Used: T099 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.7 Corr. Factor 0.0 Corrected 2.7

Date and initials of person examining contents: 09-12-2004

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#: <u>55192</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Client: Evergy

Profile # _____

Site: LEC 847 Landfill 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																														
2																															
3																															
4																															
5																															
6																															
7																															
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 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		
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 unpreserved plastic		

Work Order Number: 60410045