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### 2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT 847 LANDFILL LAWRENCE ENERGY CENTER LAWRENCE, KANSAS

by Haley & Aldrich, Inc. Cleveland, Ohio

for Evergy Kansas Central, Inc. Topeka, Kansas

File No. 129778-041 January 2022



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2021 Annual Groundwater Monitoring and Corrective Action Report

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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 (2021) and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2021 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: Kansas License No.: Title: Company: Mark Nicholls Professional Geologist No. 881 Technical Expert 2 Haley & Aldrich, Inc.





### 1. Introduction

This 2021 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 (2021) 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, 2021), 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, 2021), 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):



### 1.1.3.1 40 CFR § 257.90(e)(6)(iii)(a)

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

No statistically significant increases (SSI) over background were identified during the previous calendar year (2021).

### 1.1.3.2 40 CFR § 257.90(e)(6)(iii)(b)

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

No SSIs over background were identified during the previous calendar year (2021); therefore, an assessment monitoring program was not initiated for the 847 Landfill in 2021.

### 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 2021. 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 2021 for this unit. The 847 Landfill remained in detection monitoring during 2021.

### 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 2021; therefore, a public meeting was not held.

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

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

No assessment of corrective measures was required to be initiated in 2021 for this unit. The 847 Landfill remained in detection monitoring during 2021.



### 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 2021.



### 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 2021.

### 2.2.1 Status of the Groundwater Monitoring Program

The 847 Landfill remained in the detection monitoring program during 2021.

### 2.2.2 Key Actions Completed

The 2020 Annual Groundwater Monitoring and Corrective Action Report was completed in January 2021. Statistical evaluation was completed in January 2021 on analytical data from the September 2020 semi-annual detection monitoring sampling event. Semi-annual detection



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

### 2.2.3 Problems Encountered

One problem encountered during groundwater monitoring activities in 2021 consisted of laboratory analytical errors that required the laboratory to reanalyze the following analytical results for the March 2021 semi-annual detection monitoring sampling event:

- Sulfate for monitoring wells MW-33, MW-34, and MW-35,
- Chloride and fluoride for monitoring well MW-33, and
- Total dissolved solids for monitoring well MW-35.

These were the only issues that needed to be addressed at the 847 Landfill in 2021.

### 2.2.4 Actions to Resolve Problems

The resolution to problems encountered in 2021 included additional laboratory analyses as described above. The analytical results were revised accordingly. No other problems were encountered at the 847 Landfill in 2021; therefore, no actions to resolve problems were required.

### 2.2.5 Project Key Activities for Upcoming Year

Key activities planned for 2022 include completion of the 2021 Annual Groundwater Monitoring and Corrective Action Report, statistical evaluation of semi-annual detection monitoring analytical data collected in September 2021, 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 2021.

### 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 2021. 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. Groundwater potentiometric elevation contour maps associated with each groundwater monitoring sampling event in 2021 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 2021. Only detection monitoring was conducted in 2021.

### 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 2021.

### 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 2021; 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 2021. Consequently, Evergy is not required to establish groundwater protection standards for this CCR unit, and this criterion is not applicable.

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

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

No assessment monitoring alternate source demonstration or certification was required in 2021. The 847 Landfill remained in detection monitoring during 2021.

# 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 2021; therefore, no demonstration or certification is applicable for this unit.



TABLE

# TABLE ISUMMARY OF ANALYTICAL RESULTS -2021 DETECTION MONITORINGEVERGY KANSAS CENTRAL, INC.LAWRENCE ENERGY CENTER847 LANDFILLLAWRENCE, KANSAS

Location	Upgradient					Downgradient						
Location	MW-32		MW-35		MW-31R			MW-33		MW-34		
Measure Point (TOC)		861.96		862	2.52		857.67		855.44		871.96	
Sample Name	MW-32-031021	DUP-847LF-031021	MW-32-091521	MW-35-030921	MW-35-091521	MW-31R-031021	MW-31R-091521	LEC-847LF-DUP-091521	MW-33-031021	MW-33-091521	MW-34-031021	MW-34-091521
Sample Date	3/10/2021	3/10/2021	9/15/2021	3/9/2021	9/15/2021	3/10/2021	9/15/2021	9/15/2021	3/10/2021	9/15/2021	3/10/2021	9/15/2021
Final Lab Report Date	3/22/2021	3/22/2021	10/6/2021	3/22/2021	10/6/2021	3/22/2021	10/6/2021	10/6/2021	3/22/2021	10/6/2021	3/22/2021	10/6/2021
Final Lab Report Revision Date	3/30/2021	3/30/2021	N/A	3/30/2021	N/A	3/30/2021	N/A	N/A	3/30/2021	N/A	3/30/2021	N/A
Lab Data Reviewed and Validated	4/16/2021	4/16/2021	12/9/2021	4/16/2021	12/9/2021	4/16/2021	12/9/2021	12/9/2021	4/16/2021	12/9/2021	4/16/2021	12/9/2021
Depth to Water (ft btoc)	45.71	-	45.20	48.07	47.50	42.01	41.38	-	39.71	39.00	56.05	55.34
Temperature (Deg C)	15.20	-	16.75	15.20	17.69	15.95	17.64	-	16.30	16.90	16.85	19.39
Conductivity, Field (µS/cm)	1765	-	957	7163	3760	1622	1390	-	4789	2010	3634	1850
Turbidity, Field (NTU)	0.0	-	0.0	4.41	0.0	10.1	0.0	-	1.5	0.0	23.8	0.0
pH, Field (su)	7.78	-	8.18	7.07	7.98	7.48	7.97	-	7.11	8.35	7.38	8.62
Boron, Total (mg/L)	0.18	0.19	0.20	1.8	1.8	0.35	0.74	0.74	1.6	1.6	2.0	2.1
Calcium, Total (mg/L)	57.5	60.3	66.6	478	501	192	275	269	220	267	185	216
Chloride (mg/L)	104	110	108	16300	12100	3570	4530	4430	6900	6000	6680	5380
Fluoride (mg/L)	0.29	< 0.20	0.26	< 0.20	< 0.20	0.29	0.26	0.28	0.41	0.57	1.0	1.1
Sulfate (mg/L)	6.0	6.0	6.4	648	617	122	184	254	285	297	429	561
pH (lab) (su)	7.3	7.3	7.5	7.0	7.1	7.1	7.3	7.5	7.0	7.5	7.2	7.6
TDS (mg/L)	530	525	511	28600	26600	7720	9270	9200	13300	12800	13000	11100

Notes and Abbreviations:

Bold value: Detection above laboratory reporting limit.

Data presented in this table were verified against the laboratory and validation reports.

μS/cm = micro Siemens per centimeter

Deg C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

N/A = Not Applicable

NTU = Nephelometric Turbidity Unit

su = standard unit

TDS = total dissolved solids

TOC = top of casing



**FIGURES** 



- WATER QUALITY ONLY  $\bullet$
- 847 LANDFILL AREA

FUTURE 847 LANDFILL DISPOSAL AREA

2. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



600

SCALE IN FEET

847 LANDFILL MONITORING WELL LOCATION MAP

Severgy JANUARY 2022

FIGURE 1



ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 0.25-FT INTERVAL (AMSL)

5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020

4. AMSL = ABOVE MEAN SEA LEVEL

SCALE IN FEET

300

MARCH 10, 2021



FIGURE 2



ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 0.20-FT INTERVAL (AMSL)

5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020

SCALE IN FEET



FIGURE 3



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



October 7, 2022 Project No. 0204993-000

TO:	Evergy Kansas Central, Inc.	Concession and the second
	Jared Morrison – Director, Water and Waste Programs	
FROM:	Haley & Aldrich, Inc.	
	Steven F. Putrich, P.E., Principal Consultant – Engineering Princi	pal
	Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist	
SUBJECT:	2021 Annual Groundwater Monitoring and Corrective Action Re	eport Addendum
	Evergy Kansas Central, Inc. (Evergy)	
	847 Landfill	
	Lawrence Energy Center – Lawrence, Kansas	

The Evergy Kansas Central, Inc. (Evergy) 847 Landfill at the Lawrence Energy Center is subject to the groundwater monitoring and corrective action requirements described under Code of Federal Regulations Title 40 (40 CFR) §257.90 through §257.98 (Rule). An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting the activities completed in 2021 for the 847 Landfill was completed and placed in the facility's operating record on January 31, 2021, as required by the Rule. The Annual GWMCA Report contained the specific information listed in 40 CFR §257.90(e).

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

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

While this information is not specifically referred to in 40 CFR §257.90(e) for inclusion in the GWMCA Report, it has been routinely collected and maintained in Evergy's files and is being provided in the attachments to this addendum. The applicable laboratory analysis reports for 2021 sampling events are included in Attachment 1, and a discussion of the applicable statistical analyses completed in 2021 are included in Attachment 2 of this addendum. For each of the 2021 sampling events, the measured groundwater elevations, with calculated groundwater flow rates and directions, have been included in Attachment 3.

Evergy Kansas Central, Inc. October 7, 2022 Page 2

The attachments to this addendum are as follows providing the additional information:

- Attachment 1 Laboratory Analytical Reports: Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the sampling events completed in March and September 2021 are provided.
- Attachment 2 Statistical Analyses: Includes a discussion of the statistical analyses utilized along with a table summarizing the statistical outputs (e.g., frequency of detection, maximum detection, variance, standard deviation, coefficient of variance, outlier tests, trends, upper and lower confidence limits, and comparison against Groundwater Protection Standards), and supporting backup for statistical analyses completed in 2021. Statistical analyses completed in 2021 included:
  - Overview of the January 2021 statistical analysis for data obtained in the September 2020 sampling event; and
  - Overview of the July 2021 statistical analysis for data obtained in the March 2021 sampling event.
- Attachment 3 Groundwater Potentiometric Maps: Includes the measured groundwater elevations at each well and the generalized groundwater flow direction and calculated flow rate. Maps for the sampling events completed in March and September 2021 are provided.



**ATTACHMENT 1** Laboratory Analytical Reports ATTACHMENT 1-1 March 2021 Sampling Event Laboratory Analytical Report



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

March 30, 2021

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

RE: Project: LEC 847 LANDFILL CCR Pace Project No.: 60363587

### Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on March 11, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Kansas City

Revised Report REV\_2

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

Sincerely,

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

Enclosures

cc: Andrew Hare, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Tabitha Hylton, Evergy Kansas Central, Inc. Lawrence Energy Center
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Danielle Oberbroeckling, Haley & Aldrich
Melanie Satanek, Haley & Aldrich, Inc.





### CERTIFICATIONS

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

#### **Pace Analytical Services Kansas**

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



### SAMPLE SUMMARY

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

LLO	047		COL

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60363587001	MW-31R-031021	Water	03/10/21 09:40	03/11/21 14:30
60363587002	MW-32-031021	Water	03/10/21 08:40	03/11/21 14:30
60363587003	MW-33-031021	Water	03/10/21 10:30	03/11/21 14:30
60363587004	MW-34-031021	Water	03/10/21 11:30	03/11/21 14:30
60363587005	MW-35-030921	Water	03/09/21 16:50	03/11/21 14:30
60363587006	DUP-847LF-031021	Water	03/10/21 08:45	03/11/21 14:30



### SAMPLE ANALYTE COUNT

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60363587001	MW-31R-031021	EPA 200.7	JLH	2	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60363587002	MW-32-031021	EPA 200.7	JLH	2	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60363587003	MW-33-031021	EPA 200.7	JLH	2	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60363587004	MW-34-031021	EPA 200.7	JLH	2	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60363587005	MW-35-030921	EPA 200.7	JLH	2	PASI-K
		SM 2540C	MAP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K
60363587006	DUP-847LF-031021	EPA 200.7	JLH	2	PASI-K
		SM 2540C	VRP	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		EPA 300.0	CRN2	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City



### **PROJECT NARRATIVE**

Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Date: March 30, 2021

3/25/21 - Amended report revised to include rush rerun results for sulfate on both samples 60363587004 and 60363587005, and TDS on sample 60363587005.

3/30/21 - Amended report revised to include anions rerun results for sample 60363587003.



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: MW-31R-031021	Lab ID: 60363587001		Collected: 03/10/2	Collected: 03/10/21 09:40		8/11/21 14:30 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	00.7 Preparation Me	thod: El	PA 200.7			
	Pace Analytic	al Services -	Kansas City					
Boron, Total Recoverable	0.35	mg/L	0.10	1	03/16/21 10:18	03/19/21 20:20	7440-42-8	
Calcium, Total Recoverable	192	mg/L	0.20	1	03/16/21 10:18	03/19/21 20:20	7440-70-2	M1
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C					
	Pace Analytic	al Services -	Kansas City					
Total Dissolved Solids	7720	mg/L	200	1		03/16/21 10:16		
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B					
	Pace Analytic	al Services -	Kansas City					
pH at 25 Degrees C	7.1	Std. Units	s 0.10	1		03/15/21 11:18		H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
-	Pace Analytic	al Services -	Kansas City					
Chloride	3570	mg/L	500	500		03/19/21 11:18	16887-00-6	
Fluoride	0.29	mg/L	0.20	1		03/17/21 21:43	16984-48-8	
Sulfate	122	mg/L	20.0	20		03/19/21 10:49	14808-79-8	M1



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: MW-32-031021	Lab ID: 603	363587002	Collected: 03	3/10/2 <sup>-</sup>	1 08:40	Received: 03	/11/21 14:30 N	latrix: Water	
Parameters	Results	Units	Report Lir	mit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	thod: EPA 20	0.7 Preparation	n Meth	nod: EP	A 200.7			
	Pace Analytic	al Services -	Kansas City						
Boron, Total Recoverable	0.18	mg/L	C	0.10	1	03/16/21 10:18	03/19/21 20:28	7440-42-8	
Calcium, Total Recoverable	57.5	mg/L	C	0.20	1	03/16/21 10:18	03/19/21 20:28	7440-70-2	
2540C Total Dissolved Solids	Analytical Met	thod: SM 25	40C						
	Pace Analytic	al Services -	Kansas City						
Total Dissolved Solids	530	mg/L	1	0.0	1		03/16/21 10:17		
4500H+ pH, Electrometric	Analytical Met	thod: SM 45	00-H+B						
	Pace Analytic	al Services -	Kansas City						
pH at 25 Degrees C	7.3	Std. Units	; C	0.10	1		03/15/21 11:20		H6
300.0 IC Anions 28 Days	Analytical Met	thod: EPA 30	0.0						
-	Pace Analytic	al Services -	Kansas City						
Chloride	104	mg/L	1	0.0	10		03/17/21 23:02	16887-00-6	
Fluoride	0.29	mg/L	C	).20	1		03/17/21 22:46	16984-48-8	
Sulfate	6.0	mg/L		1.0	1		03/17/21 22:46	14808-79-8	



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: MW-33-031021	Lab ID: 603	363587003	Collected: 03/10	/21 10:30	0 Received: 03	8/11/21 14:30 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	00.7 Preparation M	ethod: EF	PA 200.7			
	Pace Analytic	al Services -	Kansas City					
Boron, Total Recoverable	1.6	mg/L	0.10	1	03/16/21 10:18	03/19/21 20:31	7440-42-8	
Calcium, Total Recoverable	220	mg/L	0.20	1	03/16/21 10:18	03/19/21 20:31	7440-70-2	
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C					
	Pace Analytic	al Services -	Kansas City					
Total Dissolved Solids	13300	mg/L	500	1		03/16/21 10:17		
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B					
	Pace Analytic	al Services -	Kansas City					
pH at 25 Degrees C	7.0	Std. Units	s 0.10	1		03/15/21 11:24		H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
-	Pace Analytic	al Services -	Kansas City					
Chloride	6900	mg/L	1000	1000		03/30/21 11:13	16887-00-6	
Fluoride	0.41	mg/L	0.20	1		03/30/21 09:38	16984-48-8	M1,R1
Sulfate	285	mg/L	50.0	50		03/30/21 10:25	14808-79-8	M1



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: MW-34-031021	Lab ID: 603	363587004	Collected: 03/10/2	21 11:30	Received: 03	/11/21 14:30 N	latrix: Water					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual				
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7											
	Pace Analytic	al Services -	Kansas City									
Boron, Total Recoverable	2.0	mg/L	0.10	1	03/16/21 10:18	03/19/21 20:34	7440-42-8					
Calcium, Total Recoverable	185	mg/L	0.20	1	03/16/21 10:18	03/19/21 20:34	7440-70-2					
2540C Total Dissolved Solids	Analytical Method: SM 2540C											
	Pace Analytic	al Services -	Kansas City									
Total Dissolved Solids	13000	mg/L	500	1		03/16/21 10:17						
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B									
	Pace Analytic	al Services -	Kansas City									
pH at 25 Degrees C	7.2	Std. Units	s 0.10	1		03/15/21 11:26		H6				
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0									
-	Pace Analytic	al Services -	Kansas City									
Chloride	6680	mg/L	1000	1000		03/18/21 23:24	16887-00-6					
Fluoride	1.0	mg/L	0.20	1		03/18/21 00:21	16984-48-8					
Sulfate	429	mg/L	100	100		03/24/21 16:46	14808-79-8	M1				



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: MW-35-030921	Lab ID: 603	863587005	Collected: 03/09/2	21 16:50	) Received: 03	8/11/21 14:30 N	Aatrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual			
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7										
	Pace Analytic	al Services -	Kansas City								
Boron, Total Recoverable	1.8	mg/L	0.10	1	03/16/21 10:18	03/19/21 20:37	7440-42-8				
Calcium, Total Recoverable	478	mg/L	0.20	1	03/16/21 10:18	03/19/21 20:37	7440-70-2				
2540C Total Dissolved Solids	Analytical Met	hod: SM 25	40C								
	Pace Analytic	al Services -	Kansas City								
Total Dissolved Solids	28600	mg/L	2000	1		03/24/21 10:44		H1			
4500H+ pH, Electrometric	Analytical Met	hod: SM 45	00-H+B								
	Pace Analytic	al Services -	Kansas City								
pH at 25 Degrees C	7.0	Std. Units	0.10	1		03/15/21 11:27		H6			
300.0 IC Anions 28 Days	Analytical Met	hod: EPA 30	0.0								
	Pace Analytic	al Services -	Kansas City								
Chloride	16300	mg/L	2000	2000		03/18/21 23:53	16887-00-6				
Fluoride	<0.20	mg/L	0.20	1		03/18/21 00:53	16984-48-8				
Sulfate	648	mg/L	100	100		03/25/21 09:32	14808-79-8				



### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

Sample: DUP-847LF-031021	Lab ID: 603	63587006	Collected: 03/10	/21 08:4	5 Received: 03	8/11/21 14:30 N	Aatrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual			
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7										
	Pace Analytic	al Services -	Kansas City								
Boron, Total Recoverable	0.19	mg/L	0.10	1	03/16/21 10:18	03/19/21 20:45	7440-42-8				
Calcium, Total Recoverable	60.3	mg/L	0.20	1	03/16/21 10:18	03/19/21 20:45	7440-70-2				
2540C Total Dissolved Solids	Analytical Met	hod: SM 25	40C								
	Pace Analytic	al Services -	Kansas City								
Total Dissolved Solids	525	mg/L	10.0	1		03/16/21 10:17					
4500H+ pH, Electrometric	Analytical Met	hod: SM 45	00-H+B								
	Pace Analytic	al Services -	Kansas City								
pH at 25 Degrees C	7.3	Std. Units	s 0.10	1		03/15/21 11:29		H6			
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0										
	Pace Analytic	al Services -	Kansas City								
Chloride	110	mg/L	10.0	10		03/18/21 01:40	16887-00-6				
Fluoride	<0.20	mg/L	0.20	1		03/18/21 01:25	16984-48-8				
Sulfate	6.0	mg/L	1.0	1		03/18/21 01:25	14808-79-8				



### **QUALITY CONTROL DATA**

Project:	LEC 847 LA	NDFILI	_ CCR										
Pace Project No.:	60363587												
QC Batch:	708836			Anal	ysis Metho	d:	EPA 200.7						
QC Batch Method: EPA 200.7				Analysis Description:				s, Total					
				Labo	oratory:		Pace Analy	tical Servic	es - Kansa	s City			
Associated Lab Sar	mples: 6030	635870	01, 6036358700	2, 6036358	37003, 603	63587004,	603635870	05, 60363	587006	·			
METHOD BLANK:	2854514				Matrix: W	/ater							
Associated Lab Sar	mples: 603	635870	01, 6036358700	2, 6036358	37003, 603	63587004,	603635870	05, 60363	587006				
				Bla	nk	Reporting							
Para	meter		Units	Res	ult	Limit	Anal	yzed	Qualifier	S			
Boron			ma/L		<0.10	0.1	0 03/19/2	1 20:13					
Calcium			mg/L		<0.20	0.2	0 03/19/2	1 20:13					
LABORATORY CO	NTROL SAMF	LE:	2854515										
				Spike	LC	S	LCS	% R	ec				
Para	meter		Units	Conc.	Re	sult	% Rec	Lim	its (	Qualifiers			
Boron			mg/L		1	0.97	9	 7	85-115		_		
Calcium			mg/L	,	10	9.5	9	5	85-115				
		יםו וח		516		2854517	7						
WATKIN OF IKE & F		_ 0011	10ATE: 2004	MS	MSD	2004011							
			60363587001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron		mg/L	0.35	1	1	1.3	1.3	97	100	70-130	3	20	
Calcium		mg/L	192	10	10	204	206	123	137	70-130	1	20	M1

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



### **QUALITY CONTROL DATA**

Project:	LEC 8	47 LANDFI	LL CCR											
Pace Project No.:	60363	587												
QC Batch:	7086	645		Analysis M	Analysis Method:			SM 2540C						
QC Batch Method:	SM 2	2540C		Analysis D	escription:	25	40C Total Dis	ssolved Solid	S					
				Laboratory	<i>/</i> :	Pa	ace Analytical	Services - K	ansas (	City				
Associated Lab Sar	mples:	60363587	001, 6036358700	2, 60363587003	, 6036358700	04, 60	0363587006							
METHOD BLANK:	28541	32		Matri	x: Water									
Associated Lab Sar	mples:	60363587	001, 6036358700	2, 60363587003	, 6036358700	)4, 60	363587006							
				Blank	Reportin	g								
Parar	meter		Units	Result	Limit		Analyze	d Qua	alifiers					
Total Dissolved Sol	ids		mg/L	<5.	0	5.0	03/16/21 10	0:16						
LABORATORY CO	NTROL	SAMPLE:	2854133											
				Spike	LCS		LCS	% Rec						
Para	meter		Units	Conc.	Result		% Rec	Limits	Qı	ualifiers				
Total Dissolved Sol	ids		mg/L	1000	1040		104	80-120	)					
	TE. 0	954494												
SAMPLE DUPLICA		004134		60363707004				Мау						
Para	meter		Units	Result	Result		RPD	RPE	)	Qualifiers				
Total Dissolved Sol	ids		mg/L	110	0 1	070		3	10					
SAMPLE DUPLICA	TE: 2	854135												
-				60363608012	2 Dup			Max	[	o 11/1				
Para	meter		Units	Result	Result		RPD		)	Qualifiers				
Total Dissolved Sol	ids		mg/L	435	0 4	530		4	10					

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


Project:	LEC 847 LANDFI	LL CCR									
Pace Project No.:	60363587										
QC Batch:	710476		Analysis Me	ethod:	SM 2540C						
QC Batch Method:	SM 2540C		Analysis De	escription: 2	2540C Total Di	ssolved Solids					
			Laboratory:	Laboratory: Pace Analytical Services - Kansas City							
Associated Lab Sar	nples: 60363587	7005									
METHOD BLANK:	2859754		Matrix	: Water							
Associated Lab Sar	nples: 60363587	7005									
			Blank	Reporting							
Paran	neter	Units	Result	Limit	Analyze	ed Quali	fiers				
Total Dissolved Soli	ds	mg/L	<5.0	5.0	0 03/24/21 1	0:44					
LABORATORY CO	NTROL SAMPLE:	2859755									
			Spike	LCS	LCS	% Rec					
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers				
Total Dissolved Soli	ds	mg/L	1000	992	99	80-120					
SAMPLE DUPLICA	TE: 2859756										
			60363587005	Dup		Max					
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers				
Total Dissolved Soli	ds	mg/L	28600	3160	0	10	10 H1				
SAMPLE DUPLICA	TE: 2859757		60264242000	Dun		Maria					
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers				
Tatal Disashuari Osti						40					
Total Dissolved Soli	as	mg/L	343	o 378	ö	10	10				

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



#### **QUALITY CONTROL DATA**

Project:	LEC 847 LANDFIL	L CCR						
Pace Project No.:	60363587							
QC Batch:	708501		Analysis Meth	od:	SM 4500-H+B			
QC Batch Method:	SM 4500-H+B		Analysis Desc	ription:	4500H+B pH			
			Laboratory:		Pace Analytical	Services - Kan	sas City	
Associated Lab Sar	nples: 603635870	001, 60363587002	2, 60363587003, 60	363587004,	60363587005, 6	0363587006		
SAMPLE DUPLICA	TE: 2853772							
			60363585001	Dup		Max		
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers	
pH at 25 Degrees C	;	Std. Units	6.8	7.	2	5	5 H6	-

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



Project.	LEC 847 LANDF	ILL CCR									
Pace Project No.:	60363587										
QC Batch:	708923		Analysis M	ethod:	EF	PA 300.0					
QC Batch Method:	EPA 300.0		Analysis De	escription:	30	0.0 IC Anion	s		0.1		
Associated Lab Sa	mples: 6036358	7001 6036358700	Laboratory	: 6036358700	Pa 15 60	ace Analytica 1363587006	Servi	ces - Kan	sas City		
	imples. 0050550	1001,0030338700	2,00303307004,	0030330700	<i>,</i> 00						
METHOD BLANK:	2854866		Matrix	k: Water							
Associated Lab Sa	mples: 6036358	7001, 6036358700	2,60363587004,	6036358700	95, 60	0363587006					
Para	meter	Units	Blank Result	Reporting Limit	g	Analvze	d	Qualif	ers		
Chloride		mg/l			1 0	03/17/21 0	<u> </u>				
Fluoride		mg/L	<0.20	, ) (	0.20	03/17/21 0	9.29 9.29				
Sulfate		mg/L	<1 (	)	1.0	03/17/21 0	9.29				
oundio		mg, =			1.0	00,11,21 0	5.20				
METHOD BLANK:	2857386		Matrix	k: Water							
Associated Lab Sa	mples: 6036358	7001, 6036358700	2, 60363587004,	6036358700	5, 60	0363587006					
_			Blank	Reporting	g						
Para	meter	Units	Result	Limit		Analyze	d	Qualif	ers		
Chloride		mg/L	<1.0	)	1.0	03/18/21 1	7:40				
Fluoride		mg/L	<0.20	) (	0.20	03/18/21 17	7:40				
Culfoto		mg/L	<1.0	)	1.0	03/18/21 17	7:40				
Sullate		0									
METHOD BLANK:	2857667		Matrix	k: Water							
METHOD BLANK: Associated Lab Sa	2857667 mples: 6036358	7001, 6036358700	Matri; 2, 60363587004,	k: Water 6036358700	05, 60	0363587006					
METHOD BLANK: Associated Lab Sa	2857667 mples: 6036358	7001, 6036358700	Matrix 2, 60363587004, Blank	k: Water 6036358700 Reporting	95, 60 g	0363587006					
METHOD BLANK: Associated Lab Sa Para	2857667 mples: 6036358 meter	7001, 6036358700 Units	Matri; 2, 60363587004, Blank Result	k: Water 6036358700 Reporting Limit	95, 60 g	0363587006 Analyze	d	Qualif	ers		
METHOD BLANK: Associated Lab Sa Para Chloride	2857667 mples: 6036358 meter	7001, 6036358700 - <u>Units</u> mg/L	Matri; 2, 60363587004, Blank 	k: Water 6036358700 Reporting Limit	95, 60 g 1.0	0363587006 Analyze 03/19/21 08	d 3:52	Qualif	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride	2857667 mples: 6036358 meter	7001, 6036358700 - <u>Units</u> mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20	c: Water 6036358700 Reporting Limit	95, 60 g 1.0 0.20	0363587006 Analyze 03/19/21 08 03/19/21 08	d 3:52 3:52	Qualif	iers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate	2857667 mples: 6036358 meter	7001, 6036358700 - Units - mg/L mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0	c: Water 6036358700 Reporting Limit	95, 60 g 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08	d 3:52 3:52 3:52	Qualif	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC	2857667 mples: 6036358 meter DNTROL SAMPLE:	7001, 6036358700 - Units - mg/L mg/L mg/L 2854867	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0	k: Water 6036358700 Reporting Limit	95, 60 g 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08	d 3:52 3:52 3:52	Qualif	iers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC	2857667 Imples: 6036358 Imeter	7001, 6036358700 - Units mg/L mg/L mg/L 2854867	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 Spike	k: Water 6036358700 Reporting Limit	95, 60 g 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08	d 3:52 3:52 3:52	Qualif	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para	2857667 mples: 6036358 meter DNTROL SAMPLE: meter	7001, 6036358700 - Units mg/L mg/L mg/L 2854867 Units	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 Spike Conc.	k: Water 6036358700 Reporting Limit 0 (0) LCS Result	95, 60 g 1.0 0.20 1.0	0363587006 Analyze 03/19/21 04 03/19/21 04 03/19/21 04 LCS % Rec	d 3:52 3:52 3:52 %   Lir	Qualif	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride	2857667 Imples: 6036358 Imeter DNTROL SAMPLE: Imeter	7001, 6036358700 - Units mg/L mg/L 2854867 - Units mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 Spike Conc. 5	k: Water 6036358700 Reporting Limit 0 0 0 LCS Result 4.8	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97	d 3:52 3:52 3:52 3:52	Qualif Qualif Rec nits 90-110	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride	2857667 mples: 6036358 meter DNTROL SAMPLE: meter	7001, 6036358700 - <u>Units</u> mg/L mg/L 2854867 - <u>Units</u> mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 Spike Conc. 5 2.5	k: Water 6036358700 Reporting Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97 97	d 3:52 3:52 3:52 3:52	Qualif Rec nits 90-110 90-110	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate	2857667 mples: 6036358 meter DNTROL SAMPLE: meter	7001, 6036358700 - Units mg/L mg/L 2854867 - Units mg/L mg/L mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.	k: Water 6036358700 Reporting Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97 97 96	d 3:52 3:52 3:52 .ir	Qualif Rec nits 90-110 90-110 90-110	ers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate	2857667 mples: 6036358 meter DNTROL SAMPLE: meter	7001, 6036358700 - Units mg/L mg/L 2854867 Units mg/L mg/L mg/L mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 <1.0 <0.20 <1.0 <1.0 <1.0 <0.25 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0	k: Water 6036358700 Reporting Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97 97 96	d 3:52 3:52 3:52 Lir	Qualif Rec nits 90-110 90-110 90-110	uers		
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate	2857667 Imples: 6036358 Imeter DNTROL SAMPLE: Imeter	2854867 - Units - Units - mg/L mg/L - 2854867 - Units - mg/L mg/L mg/L - mg/L - mg/	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 <1.0 <1.0 <5 2.5 5 5 Spike Conc. 5 5 5	c: Water 6036358700 Reporting Limit 0 0 0 LCS Result 4.8 2.4 4.8 2.4 4.8	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97 97 96	d 3:52 3:52 3:52 %   Lir	Qualif Rec nits 90-110 90-110 90-110 Rec	Qualifie	<u></u>	
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate LABORATORY CC Para	2857667 mples: 6036358 meter DNTROL SAMPLE: meter	2857387 Units 001, 6036358700 Units mg/L mg/L mg/L mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 <1.0 <1.0 <2.5 5 2.5 5 5 Spike Conc.	k: Water 6036358700 Reporting Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 04 03/19/21 04 04 03/19/21 04 04 04 04 04 04 04 04 04 04 04 04 04 0	d 3:52 3:52 3:52 Lir	Qualif Rec nits 90-110 90-110 90-110 90-110 Rec nits	Qualifie	<u>'S</u> 'S	
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Sulfate LABORATORY CC Para Chloride	2857667 Imples: 6036358 Imeter DNTROL SAMPLE: Imeter	7001, 6036358700 - Units mg/L mg/L mg/L 2854867 - Units mg/L mg/L 2857387 - Units mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 //	k: Water 6036358700 Reporting Limit 0 0 0 LCS Result 4.8 2.4 4.8 2.4 4.8 2.4 4.8	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 00/19/21 08 00/19/2100000000000000000000000000000000	d 3:52 3:52 3:52 Lir	Qualif Rec nits 90-110 90-110 90-110 Rec nits 90-110	Qualifie	'S	
METHOD BLANK: Associated Lab Sa Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate LABORATORY CC Para Chloride Fluoride Sulfate	2857667 Imples: 6036358 Imeter DNTROL SAMPLE: Imeter	7001, 6036358700 - Units mg/L mg/L mg/L 2854867 - Units mg/L mg/L 2857387 - Units mg/L mg/L mg/L	Matrix 2, 60363587004, Blank Result <1.0 <0.20 <1.0 Spike Conc. 5 2.5 5 5 Spike Conc. 5 2.5 5	k: Water 6036358700 Reporting Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	95, 60 9 1.0 0.20 1.0	0363587006 Analyze 03/19/21 08 03/19/21 08 03/19/21 08 03/19/21 08 UCS % Rec 97 96 LCS % Rec 97 96	d 3:52 3:52 3:52 Lir Lir	Qualif Rec nits 90-110 90-110 90-110 Rec nits 90-110 90-110	Qualifie	<u>''S</u> <u>''S</u>	

## **REPORT OF LABORATORY ANALYSIS**



#### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

LABORATORY CONTROL SAMPLE:	2857668					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPI	KE DUPI	LICATE: 2854	868		2854869							
		60262602001	MS Spiko	MSD Spike	Me	Med	MS	Med	% <b>D</b> oo		Mox	
		00303093001	Spike	эріке	1015	IVISD	1015	IVISD	% Rec		wax	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	19.3	5	5	24.9	24.9	111	111	80-120	0	15	E
Fluoride	mg/L	0.68	2.5	2.5	3.2	3.2	100	100	80-120	0	15	
Sulfate	mg/L	13.1	5	5	18.2	18.2	104	104	80-120	0	15	

MATRIX SPIKE SAMPLE:	2854870						
		60363587001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	3570	2500	6200	105	80-120	
Fluoride	mg/L	0.29	2.5	2.5	90	80-120	
Sulfate	mg/L	122	100	255	133	80-120 M <sup>2</sup>	1

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.



Project:	LEC 847 LANDFI	LL CCR							
Pace Project No.:	60363587								
QC Batch:	710331		Analysis	Method:	El	PA 300.0			
QC Batch Method:	EPA 300.0		Analysis	Description:	30	0.0 IC Anions	;		
			Laborato	ry:	Pa	ace Analytical	Services - Kar	nsas City	
Associated Lab Sar	nples: 6036358 <sup>-</sup>	7004, 60363587005							
METHOD BLANK:	2859329		Mat	trix: Water					
Associated Lab Sar	mples: 6036358	7004, 60363587005							
Dama		11-2-	Blank	Reportir	ng	<b>A</b>		<b>.</b>	
Parar	neter	Units	Result			Analyzed		liers	
Sulfate		mg/L	<′	1.0	1.0	03/23/21 16	::16		
METHOD BLANK:	2860784		Mat	trix: Water					
Associated Lab Sar	mples: 6036358 <sup>-</sup>	7004, 60363587005							
			Blank	Reportir	ng				
Parar	neter	Units	Result	Limit		Analyzed	l Qualit	fiers	
Sulfate		mg/L	<	1.0	1.0	03/24/21 09	:33		
METHOD BLANK:	2861026		Mat	trix: Water					
Associated Lab Sar	mples: 6036358 <sup>-</sup>	7004, 60363587005							
_			Blank	Reportir	ng				
Parar	neter	Units	Result			Analyzed		fiers	
Sulfate		mg/L	<	1.0	1.0	03/25/21 09	::01		
LABORATORY CO	NTROL SAMPLE:	2859330							
5			Spike	LCS		LCS	% Rec		
Parar	neter		Conc.	Result		% Rec	Limits	Qualifiers	
Sulfate		mg/L	5	5.2		103	90-110		
LABORATORY CO	NTROL SAMPLE:	2860785							
Deve		Linita	Spike	LCS		LCS	% Rec	Qualifiana	
Parar	neter		Conc.	Result		% Rec		Quaimers	
Sulfate		mg/L	5	5.1		102	90-110		
LABORATORY CO	NTROL SAMPLE:	2861027							
-		11.2	Spike	LCS		LCS	% Rec	Qualif	
Parar	neter	Units	Conc.	Result		% Kec	Limits	Qualifiers	
Sulfate		mg/L	5	5.0		101	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**



Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

MATRIX SPIKE & MATRIX SP	PIKE DUPL	ICATE: 2859	331 MS	MSD	2859332	2						
Parameter	Units	60363587004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	429	500	500	1190	1110	153	137	80-120	7	15	M1
MATRIX SPIKE SAMPLE:		2859333										
Parameter		Units	60364 Re	181004 esult	Spike Conc.	MS Result	%	MS 5 Rec	% Rec Limits		Quali	fiers
Sulfate		mg/L		0.72J	5		5.8	102	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**



LEC 847 LANDFILL CCR Project: Pace Project No .: 60363587 QC Batch: 711556 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: 60363587003 METHOD BLANK: 2863777 Matrix: Water Associated Lab Samples: 60363587003 Blank Reporting Qualifiers Parameter Units Result Limit Analyzed Chloride mg/L <1.0 1.0 03/30/21 09:06 Fluoride <0.20 0.20 03/30/21 09:06 mg/L Sulfate mg/L 03/30/21 09:06 <1.0 1.0 LABORATORY CONTROL SAMPLE: 2863778 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride 5 4.8 95 90-110 mg/L Fluoride 2.5 2.5 98 mg/L 90-110 Sulfate mg/L 5 5.0 101 90-110 MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2863779 2863780 MS MSD 60363587003 MSD Spike Spike MS MS MSD % Rec Max Qual Parameter Conc. Result Result % Rec RPD RPD Units Result Conc. % Rec Limits Chloride 5000 5000 11800 11500 6900 99 92 80-120 3 15 mg/L Fluoride mg/L 0.41 2.5 2.5 2.8 1.9 96 61 80-120 38 15 M1,R1

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**

Sulfate

mg/L

285

250

250

611

540

130

102

80-120

12

15 M1



#### QUALIFIERS

#### Project: LEC 847 LANDFILL CCR

Pace Project No.: 60363587

#### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

**RPD** - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

#### ANALYTE QUALIFIERS

- E Analyte concentration exceeded the calibration range. The reported result is estimated.
- H1 Analysis conducted outside the EPA method holding time.
- H6 Analysis initiated outside of the 15 minute EPA required holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC 847 LANDFILL CCR 587

Pace Project No.:	603635
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Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60363587001	MW-31R-031021	EPA 200.7	708836	EPA 200.7	708952
60363587002	MW-32-031021	EPA 200.7	708836	EPA 200.7	708952
60363587003	MW-33-031021	EPA 200.7	708836	EPA 200.7	708952
60363587004	MW-34-031021	EPA 200.7	708836	EPA 200.7	708952
60363587005	MW-35-030921	EPA 200.7	708836	EPA 200.7	708952
60363587006	DUP-847LF-031021	EPA 200.7	708836	EPA 200.7	708952
60363587001	MW-31R-031021	SM 2540C	708645		
60363587002	MW-32-031021	SM 2540C	708645		
60363587003	MW-33-031021	SM 2540C	708645		
60363587004	MW-34-031021	SM 2540C	708645		
60363587005	MW-35-030921	SM 2540C	710476		
60363587006	DUP-847LF-031021	SM 2540C	708645		
60363587001	MW-31R-031021	SM 4500-H+B	708501		
60363587002	MW-32-031021	SM 4500-H+B	708501		
60363587003	MW-33-031021	SM 4500-H+B	708501		
60363587004	MW-34-031021	SM 4500-H+B	708501		
60363587005	MW-35-030921	SM 4500-H+B	708501		
60363587006	DUP-847LF-031021	SM 4500-H+B	708501		
60363587001	MW-31R-031021	EPA 300.0	708923		
60363587002	MW-32-031021	EPA 300.0	708923		
60363587003	MW-33-031021	EPA 300.0	711556		
60363587004	MW-34-031021	EPA 300.0	708923		
60363587004	MW-34-031021	EPA 300.0	710331		
60363587005	MW-35-030921	EPA 300.0	708923		
60363587005	MW-35-030921	EPA 300.0	710331		
60363587006	DUP-847LF-031021	EPA 300.0	708923		

Client Name:       Strand Cases Strand	Sample Condition	Upon Receipt	WO#:60363587
Courier:       FedEx       UPS       VAL       Clay       PEX       ECI       Pace Shipping Label Used?       No N         Custody Seal on Cooler/Box Present:       Yes       No N       No N       No N         Custody Seal on Cooler/Box Present:       Bubble Bags       Foam       No N       Other N Z pic         Thermometer Used:       T251%       Type of Ice       Blue None       Other N Z pic         Cooler Temperature (NC):       As read 2:5       Corr. Factor 0:0       Corrected 2:5       Date and Initials of person         Temperature Should be above freezing to 0:0       Thermometer Used:       None       None       Date and Initials of person         Samples arrived within holding time:       Yes       No       No       No       No         Samples arrived within holding time:       Yes       No       No       No       No         Samples arrived within holding time:       Yes       No       No       No       No         Samples arrived within holding time:       Yes       No       No       No       No         Samples arrived within holding time:       Yes       No       No       No       No         Containers used:       Yes       No       No       No       No       No	Client Name: Evergy Kansas G	entral	
Tracking #:       Pace Shipping Label Used? Yes I No Q         Custody Seal on Cooler/Box Present: Yes I No Q       Seals intact: Yes I No Q         Packing Material:       Bubble Bags I Foam None I Other CL         Thermometer Used:       T29 bit Intalia of preson         Cooler Temperature (*C):       As-read 2.5         Corr. Factor 0::       Corrected 2.5         Tampeature should be above freezing to 6°C       Date and initials of preson         Chain of Custody present:       Yes INo INA         Samples arrive within holding time:       Yes INo INA         Sufficient volume:       Yes INo INA         Correct containers used:       Yes INo INA         Sufficient volume:       Yes INo INA         Correct containers used:       Yes INo INA         Pace containers used:       Yes INo INA         Containers intact:       Yes INo INA         Samples arrive for dissolved tests?       Yes INo INA         Samples contain multiple phraservation in compliance?       Yes INo INA         Samples contain multiple phraservation in compliance?       Yes INo INA         Samples table match COC: Date / time / ID / analyses       Yes INo INA         Container requiring ph preservation in compliance?       Yes INo INA         Container requiring ph preservation in compliance?       Yes INo INA	Courier: FedEx UPS VIA Clay	PEX 🗆 🛛 ECI 🗆	Pace 🗆 🛛 Xroads 🗆 Client 🕅 Other 🗆
Custody Seal on Cooler/Box Present: Yes DNON Seals intact: Yes DNON Packing Material: Bubble Wrap Bubble Bags Faam None Duter Zorc Date and initials of person examining contents: 1221	Tracking #: Pa	ce Shipping Label Used	?Yes 🗆 No 🕅
Packing Material: Bubble Wrap D Bubble Bags Foam None Cherry Zolc Thermometr Used: T23% Type of loc Type of loc Blue None Core Temperature (*C): As-read 2.5 Corr. Factor O.O. Corrected 2.5 Temperature should be above freezing to 3°C Chain of Custody present: New DNA Samples arrived within holding time: Yes DNo DNA Samples arrived within holding time: Yes DNo DNA Samples containers used: Orac None DNA Sufficient volume: Yes DNo DNA Samples contain multiple phases? Matrix: YH UNA Samples contain for USA KS TH, OKORO UDTH Yes DNo Patasium iodide test stip turns dark? (Record only) Patasium iodide test stip turns dark? (Record only) Patasium iodide test stip turns blue/purple? (Preserve) Two DNo Patasium iodide test stip turns blue/purple? (Preserve)	Custody Seal on Cooler/Box Present: Yes 🗆 No 🏹	Seals intact: Yes 🗆	No 💐
Cooler Temperature (*C):       As-read       Z.S       Corr. Factor       Corrected       Z.S       Date and initials of person examining contents:       III 2 2 1 5 1         Temperature should be above freezing to 6°C       Chain of Custody present:       Ves       No       NA         Chain of Custody reinquished:       Ves       No       NA       Samples arrived within holding time:       Ves       No       NA         Samples arrived within holding time:       Ves       No       NA       Samples arrived within holding time:       Ves       No       NA         Short Hold Time analyses (<72hr):	Packing Material:     Bubble Wrap □     Bubble Bags       Thermometer Used:     T298     Type of	□ Foam □ of Ice: ₩ Blue Non	None D Other Q Zp IC
Chain of Custody present:       Ves       Nva         Chain of Custody relinguished:       Ves       Nva         Samples arrived within holding time:       Ves       Nva         Short Hold Time analyses (s72hr):       Uves       Nva         Rush Turn Around Time requested:       Uves       Nva         Sufficient volume:       Uves       Nva         Correct containers used:       Vves       Nva         Pace containers used:       Vves       Nva         Containers intact:       Vves       Nva         Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?       Vves       Nva         Sample labels match COC: Date / time / ID / analyses       Vves       Nva         Samples contain multiple phases?       Matrix:       Vves       Nva         Containers requiring pH preservation in compliance?       Vres       Nva       List sample IDs, volumes, lot #'s of preservative and the date/time added.         Cyanide water sample checks:       Lead acetate strip turns blue/purple? (Preserve)       Uves       Nva         Pressium indide test strip turns blue/purple? (Preserve)       Uves       Nva       Samples Into Kark? (Record only)         Press Invo       INA       Samples from USDA Regulated Area:       State:       Uves       Nva <td< td=""><td>Cooler Temperature (°C): As-read <math>2.5</math> Corr. Fac Temperature should be above freezing to 6°C</td><td>tor O. O Correcte</td><td>ed 2.5 Date and initials of person examining contents: 3 12 21 Sm</td></td<>	Cooler Temperature (°C): As-read $2.5$ Corr. Fac Temperature should be above freezing to 6°C	tor O. O Correcte	ed 2.5 Date and initials of person examining contents: 3 12 21 Sm
Chain of Custody relinquished:       Vest       No       INVA         Samples arrived within holding time:       Vest       No       INVA         Short Hold Time analyses (<72hr):	Chain of Custody present:		
Samples arrived within holding time:       Yes       No       N/A         Short Hold Time analyses (<72hr):	Chain of Custody relinquished:		
Smithed within houng unite.       Qriss Div       Div         Short Hold Time analyses (<72hr):	Samples arrived within holding time:		
Rush Turn Around Time requested:       Image: State imag	Short Hold Time analyses (<72hr):		
Sufficient volume:       Ves       No       NA         Correct containers used:       Ves       No       NA         Pace containers used:       Ves       No       NA         Pace containers used:       Ves       No       NA         Containers intact:       Ves       No       NA         Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?       Ves       No       NA         Filtered volume received for dissolved tests?       Ves       No       NA         Sample labels match COC: Date / time / ID / analyses       Ves       No       NA         Sample labels match COC: Date / time / ID / analyses       Ves       No       NA         Samples contain multiple phases?       Matrix:       Ves       No       NA         Containers requiring pH preservation in compliance?       Ves       No       NA         Containers requiring the preservation in compliance?       Ves       No       NA         Containers sequiring the preservation in compliance?       Ves       No       NA         Containers requiring the preservation in compliance?       Ves       No       NA         Lead acetate strip turns dark? (Record only)       Ves       No       NA         Lead acetate strip turns dark? (Record only)	Rush Turn Around Time requested:		
Correct containers used:       No       No       No         Pace containers used:       Nyes       No       No         Pace containers used:       Nyes       No       No         Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?       Yes       No       No         Filtered volume received for dissolved tests?       Yes       No       No         Sample labels match COC: Date / time / ID / analyses       Yes       No       No         Samples contain multiple phases?       Matrix:       Yes       No       No         Containers requiring PH preservation in compliance?       Yes       No       No       No         Cyanide water sample checks:       Lead acetate strip turns dark? (Record only)       Yes       No       No         Potassium iodide test strip turns blue/purple? (Preserve)       Yes       No       No       No         Trip Blank present:       Yes       No       No       No       No         Headspace in VOA vials (>6mm):       Yes       No       No       No       No <tr< td=""><td>Sufficient volume:</td><td></td><td></td></tr<>	Sufficient volume:		
Pace containers used:       Nrs         Pace containers used:       Nrs         Containers intact:       Nrs         Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?       Pres         Filtered volume received for dissolved tests?       Pres         Sample labels match COC: Date / time / ID / analyses       Yes         Sample labels match COC: Date / time / ID / analyses       Yes         Sample scontain multiple phases?       Matrix:         Matrix:       Mrs         Containers requiring pH preservation in compliance?       Yes         (HNO <sub>2</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       IN/A         Exceptions:       VOA, HCI         Potassium iodide test strip turns dark? (Record only)       IVes         Pres       IN/A         Headspace in VOA vials (>6mm):       IVes         Samples from USDA Regulated Area:       State:         Copy COC to Client?       Y         Person Contacted:       Copy COC to Client?         Copy COC to Client?       Y         Person Contacted:       Date/Time:         Comments/ Resolution:       Date/Time:	Correct containers used		
Containers intact:       Yes       No       N/A         Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?       Yes       No       N/A         Filtered volume received for dissolved tests?       Yes       No       N/A         Sample labels match COC: Date / time / ID / analyses       Yes       No       N/A         Sample labels match COC: Date / time / ID / analyses       Yes       No       N/A         Sample scontain multiple phases?       Matrix:       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         (HNOx, H_SO, HCI-2; NoOH>9 Suffice, NaOH>10 Cyanide)       Ist sample labels match cock:       List sample labels         Cyanide water sample checks:       Lead acetate strip turns dark? (Record only)       Yes       No         Potassium iodide test strip turns blue/purple? (Preserve)       Yes       No       N/A         Headspace in VOA viats (>6mm):       Yes       No       N/A         Samples from USDA Regulated Area:       State:       Yes       No       N/A         Additional labels attached to 5035A / TX1005 viats in the field?       Yes       No       N/A         Client Notification/ Resolution:       Copy CoC to Client?       Y       N       Field Data Required?       Y<	Pace containers used:		
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? Ves No N/A Filtered volume received for dissolved tests? Sample labels match COC: Date / time / ID / analyses Yes No N/A Samples contain multiple phases? Matrix: Ho yes No N/A Containers requiring pH preservation in compliance? Yes No N/A List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# List sample IDs, volumes, lot #'s of preservative and the date/time added. Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Potassium iodide test strip turns blue/purple? (Preserve) Yes INo NA Headspace in VOA vials ( >6mm): Samples from USDA Regulated Area: State: Copy COC to C tient? Y / N Field Data Required? Y / N Field Data Required? Y / N Person Contacted: Comments/ Resolution: Comments/ Resolution: Comments	Containers intact:		
Filtered volume received for dissolved tests?       Yes       No       Nv/A         Sample labels match COC: Date / time / ID / analyses       Yes       No       Nv/A         Samples contain multiple phases?       Matrix:       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Containers requiring pH preservation in compliance?       Yes       No       Nv/A         Cate of the preservation of the preservative and the date/time added.       List sample lDs, volumes, lot #'s of preservative and the date/time added.         Lead acetate strip turns dark? (Record only)       Yes       No       Nv/A         Potassium iodide test strip turns blue/purple? (Preserve)       Yes       No       Nv/A         Headspace in VOA vials ( >6	Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	Yes No N/A	
Sample labels match COC: Date / time / ID / analyses       Yes       No       N/A         Samples contain multiple phases?       Matrix:       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         Containers requiring pH preservation in compliance?       Yes       No       N/A         List sample IDS, volumes, lot #'s of preservative and the date/time added.         (HNO3, H <sub>2</sub> SO4, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       List sample checks:         Cyanide water sample checks:	Filtered volume received for dissolved tests?	□Yes □No N/A	
Samples contain multiple phases?       Matrix:       Image: Signal Signa	Sample labels match COC: Date / time / ID / analyses	Yes No N/A	
Containers requiring pH preservation in compliance?       Yes       No       NA       List sample IDs, volumes, lot #'s of preservative and the date/time added.         (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       LOT#       Lot 3 (13)       List sample IDs, volumes, lot #'s of preservative and the date/time added.         Cyanide water sample checks:       Lot # (13)       No       No       List sample IDs, volumes, lot #'s of preservative and the date/time added.         Lead acetate strip turns dark? (Record only)       IVes       No       No       No         Potassium iodide test strip turns blue/purple? (Preserve)       IVes       No       No         Trip Blank present:       IVes       No       No         Headspace in VOA vials (>6mm):       IVes       No       No         Samples from USDA Regulated Area:       State:       IVes       No         Client Notification/ Resolution:       Copy COC to Client?       Y       N         Person Contacted:       Date/Time:	Samples contain multiple phases? Matrix: WH	□Yes 🗽No □N/A	
(HNO3, H2SO4, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide)       Image: Comparison of the state of t	Containers requiring pH preservation in compliance?		List sample IDs, volumes, lot #'s of preservative and the
Lead acetate strip turns dark? (Record only) IYes   Potassium iodide test strip turns blue/purple? (Preserve) IYes   Irip Blank present: IYes   Indextremation of the field IYes   Indextremati	(HNO₃, H₂SO₄, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT# <sup>↑</sup> Cvanide water sample checks:	6:3173	
Potassium iodide test strip turns blue/purple? (Preserve)       Image: Ima	Lead acetate strip turns dark? (Record only)	□Yes □No	
Trip Blank present:       Image: Constraint of the second se	Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	
Headspace in VOA vials (>6mm):       Image: Im	Trip Blank present:	Yes No NA	
Samples from USDA Regulated Area:       State:       Yes       No       N/A         Additional labels attached to 5035A / TX1005 vials in the field?       Yes       No       N/A         Client Notification/ Resolution:       Copy COC to Client?       Y / N       Field Data Required?       Y / N         Person Contacted:	Headspace in VOA vials ( >6mm):	Yes No N/A	
Additional labels attached to 5035A / TX1005 vials in the field?       Image: Copy COC to Client?       Ima	Samples from USDA Regulated Area: State:	Yes No N/A	
Person Contacted: Date/Time: Comments/ Resolution:	Additional labels attached to 5035A / TX1005 vials in the field Client Notification/ Resolution: Copy COC	to Client? Y / N	Field Data Required? Y / N
Comments/ Resolution:	Person Contacted: Date/	Time:	
	Comments/ Resolution:		

Project Manager Review:

Date: \_\_\_\_\_



## CHAIN-OF-CUSTODY / Analytical Request Document

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

Section Require	IA d Client Information:	Section B Section C Required Project Information:																Г	Page	e: 1	of	1										
Compan	EVERGY KANSAS CENTRAL, INC.	Report To:	Mel	lissa	Michels.	Samanth	a Kanev	Danielle	Ohe	Atten	tion:	rmatic A	on:	inte	Pa	able	1			_	_											
Address	Lawrence Energy Center (LEC)	Copy To:	Jare	ed M	orrison	ake Hum		ura Hino	-	Comr	anv N	lame			<u>CV</u>	KAN	CAC	0	NITC	141		_	_		_	_						
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	meilssa.micnels@evergy.com	Purchase	Order	NO.:						Pace ( Refere	Quole ence:											Γι	JST	Г	RCI	RA		ſ	OTHE	R		
Phone:	785-575-8113 Fax:	Project Na	ime:	LEC	847 Lar	ndfill CCF	२			Pace I Manag	Project ger:	Ja	asmi	ne A	Ame	rin, I	913-	563	-140	3	T	Site	Locatio	on								
Request	ed Due Date/TAT: 7 day	Project Nu	mber:							Pace	Profile #	#: 96	655,	2									STAT	E:		KS						
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	Required Client Information MATRIX DRINKING WATER	CODE DW	es to	No.		COLL	ECTED				L	Pr	eser	vativ	ves	_	Þ	: <u> </u>		N	N											
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3	MW-33-031021		wт	G			03/10/21	10:30		3	2	1					1	T <sub>x</sub>	x	x	x				+							
4	MW-34-031021		wт	G	12		03/10/21	11:30		3	2	1					1		X	X	x						+	1				
5	MW-35-030921		wт	G		6	03/09/21	16:50		3	2	1		П			1		1 <sub>x</sub>	x	x				+			<u> </u>				
6	DUP-847LF-031021		wт	G			03/10/21	8:45		3	2	1					1		X	x	x											
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\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ATTACHMENT 1-2 September 2021 Sampling Event Laboratory Analytical Report



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

October 06, 2021

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

RE: Project: LEC 847 Landfill CCR Pace Project No.: 60380635

Dear Melissa Michels:

Enclosed are the analytical results for sample(s) received by the laboratory on September 17, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Kansas City

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

Sincerely,

A

Hank Kapka hank.kapka@pacelabs.com (913)599-5665 PM Lab Management

Enclosures

cc: Andrew Hare, Evergy, Inc.
Laura Hines, Evergy, Inc.
Jake Humphrey, Evergy, Inc.
Tabitha Hylton, Evergy Kansas Central, Inc. Lawrence
Energy Center
Samantha Kaney, Haley & Aldrich
Jared Morrison, Evergy, Inc.
Danielle Oberbroeckling, Haley & Aldrich
Melanie Satanek, Haley & Aldrich, Inc.





#### CERTIFICATIONS

Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

#### 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 #: T104704407-19-12 Utah Certification #: KS000212019-9 Illinois Certification #: 004592 Kansas Field Laboratory Accreditation: # E-92587 Missouri SEKS Micro Certification: 10070



#### SAMPLE SUMMARY

Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60380635001	MW-31R-091521	Water	09/15/21 13:45	09/17/21 00:00
60380635002	MW-32-091521	Water	09/15/21 12:40	09/17/21 00:00
60380635003	MW-33-091521	Water	09/15/21 14:55	09/17/21 00:00
60380635004	MW-34-091521	Water	09/15/21 15:45	09/17/21 00:00
60380635005	MW-35-091521	Water	09/15/21 11:35	09/17/21 00:00
60380635006	LEC-847LF-DUP-091521	Water	09/15/21 13:50	09/17/21 00:00



#### SAMPLE ANALYTE COUNT

Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60380635001	MW-31R-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60380635002	MW-32-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60380635003	MW-33-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH	3	PASI-K
60380635004	MW-34-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH, JDS	3	PASI-K
60380635005	MW-35-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH, JDS	3	PASI-K
60380635006	LEC-847LF-DUP-091521	EPA 200.7	JLH	2	PASI-K
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	KB	1	PASI-K
		EPA 300.0	ALH, JDS	3	PASI-K

PASI-K = Pace Analytical Services - Kansas City



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: MW-31R-091521	Lab ID: 603	Lab ID: 60380635001 C		ected: 09/15/21 13:45		0/17/21 00:00 N	latrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual		
200.7 Metals, Total	Analytical Me	thod: EPA 20	00.7 Preparation Me	ethod: El	PA 200.7					
	Pace Analytic	al Services	Kansas City							
Boron, Total Recoverable	0.74	mg/L	0.10	1	09/24/21 16:45	09/28/21 12:06	7440-42-8			
Calcium, Total Recoverable	275	mg/L	0.20	1	09/24/21 16:45	09/28/21 12:06	7440-70-2			
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C							
	Pace Analytic	al Services	Kansas City							
Total Dissolved Solids	9270	mg/L	333	1		09/22/21 13:34				
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B									
	Pace Analytic	al Services	Kansas City							
pH at 25 Degrees C	7.3	Std. Units	s 0.10	1		09/20/21 13:56		H6		
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 3	0.0							
-	Pace Analytic	al Services	Kansas City							
Chloride	4530	mg/L	1000	1000		09/28/21 11:02	16887-00-6			
Fluoride	0.26	mg/L	0.20	1		09/23/21 03:07	16984-48-8			
Sulfate	184	mg/L	20.0	20		09/23/21 03:26	14808-79-8			



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: MW-32-091521	Lab ID: 603	80635002	Collected: 09/15	/21 12:4	0 Received: 09	)/17/21 00:00 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	00.7 Preparation M	ethod: E	PA 200.7			
	Pace Analytic	al Services ·	Kansas City					
Boron, Total Recoverable	0.20	mg/L	0.10	1	09/24/21 16:45	09/28/21 12:09	7440-42-8	
Calcium, Total Recoverable	66.6	mg/L	0.20	1	09/24/21 16:45	09/28/21 12:09	7440-70-2	
2540C Total Dissolved Solids	Analytical Met	hod: SM 25	40C					
	Pace Analytic	al Services ·	Kansas City					
Total Dissolved Solids	511	mg/L	10.0	1		09/22/21 13:34		
4500H+ pH, Electrometric	Analytical Met	hod: SM 45	00-H+B					
	Pace Analytic	al Services ·	Kansas City					
pH at 25 Degrees C	7.5	Std. Units	s 0.10	1		09/20/21 13:53		H6
300.0 IC Anions 28 Days	Analytical Met	hod: EPA 3	0.0					
-	Pace Analytic	al Services ·	Kansas City					
Chloride	108	mg/L	20.0	20		09/30/21 15:05	16887-00-6	
Fluoride	0.26	mg/L	0.20	1		09/30/21 14:47	16984-48-8	
Sulfate	6.4	mg/L	1.0	1		09/30/21 14:47	14808-79-8	



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: MW-33-091521	Lab ID: 603	380635003	Collected: 09/15	5/21 14:5	5 Received: 09	0/17/21 00:00 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	00.7 Preparation N	ethod: El	PA 200.7			
	Pace Analytic	al Services -	Kansas City					
Boron, Total Recoverable	1.6	mg/L	0.10	) 1	09/24/21 16:45	09/28/21 12:19	7440-42-8	
Calcium, Total Recoverable	267	mg/L	0.20	) 1	09/24/21 16:45	09/28/21 12:19	7440-70-2	
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C					
	Pace Analytic	al Services -	Kansas City					
Total Dissolved Solids	12800	mg/L	500	) 1		09/22/21 13:35		
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B					
	Pace Analytic	al Services -	Kansas City					
pH at 25 Degrees C	7.5	Std. Units	s 0.10	) 1		09/20/21 14:01		H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
	Pace Analytic	al Services -	Kansas City					
Chloride	6000	mg/L	100	1000		09/28/21 11:42	16887-00-6	
Fluoride	0.57	mg/L	0.20	) 1		09/23/21 04:21	16984-48-8	
Sulfate	297	mg/L	20.0	) 20		09/23/21 04:39	14808-79-8	



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: MW-34-091521	Lab ID: 60	380635004	Collected: 09/15/	21 15:45	5 Received: 09	0/17/21 00:00 N	Aatrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual			
200.7 Metals, Total	Analytical Me	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
	Pace Analytic	al Services -	Kansas City								
Boron, Total Recoverable	2.1	mg/L	0.10	1	09/24/21 16:45	09/28/21 12:22	7440-42-8				
Calcium, Total Recoverable	216	mg/L	0.20	1	09/24/21 16:45	09/28/21 12:22	7440-70-2				
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C								
	Pace Analytic	al Services -	Kansas City								
Total Dissolved Solids	11100	mg/L	500	1		09/22/21 13:35					
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B								
	Pace Analytic	al Services -	Kansas City								
pH at 25 Degrees C	7.6	Std. Units	s 0.10	1		09/20/21 14:03		H6			
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0								
-	Pace Analytic	al Services -	Kansas City								
Chloride	5380	mg/L	1000	1000		09/24/21 13:55	16887-00-6				
Fluoride	1.1	mg/L	0.20	1		09/23/21 15:22	16984-48-8	M1,R1			
Sulfate	561	mg/L	50.0	50		09/24/21 13:20	14808-79-8	M1			



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: MW-35-091521	Lab ID: 603	380635005	Collected: 09/15/	21 11:35	5 Received: 09	/17/21 00:00 N	Aatrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual			
200.7 Metals, Total	Analytical Me	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
	Pace Analytic	al Services -	Kansas City								
Boron, Total Recoverable	1.8	mg/L	0.10	1	09/24/21 16:45	09/28/21 12:25	7440-42-8				
Calcium, Total Recoverable	501	mg/L	0.20	1	09/24/21 16:45	09/28/21 12:25	7440-70-2				
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C								
	Pace Analytic	al Services -	Kansas City								
Total Dissolved Solids	26600	mg/L	2000	1		09/22/21 13:35					
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B								
	Pace Analytic	al Services -	Kansas City								
pH at 25 Degrees C	7.1	Std. Units	s 0.10	1		09/20/21 13:48		H6			
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0								
	Pace Analytic	al Services -	Kansas City								
Chloride	12100	mg/L	2000	2000		09/24/21 14:42	16887-00-6				
Fluoride	<0.20	mg/L	0.20	1		09/23/21 17:12	16984-48-8				
Sulfate	617	mg/L	100	100		09/24/21 14:30	14808-79-8				



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

Sample: LEC-847LF-DUP-091521	Lab ID: 60	380635006	Collected: 09/1	5/21 13:5	0 Received: 09	0/17/21 00:00 N	Aatrix: Water	
Parameters	Results	Units	Report Lim	t DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation I	Method: E	PA 200.7			
	Pace Analytic	al Services -	Kansas City					
Boron, Total Recoverable	0.74	mg/L	0.1	0 1	09/24/21 16:45	09/28/21 12:28	7440-42-8	
Calcium, Total Recoverable	269	mg/L	0.2	20 1	09/24/21 16:45	09/28/21 12:28	7440-70-2	
2540C Total Dissolved Solids	Analytical Me	thod: SM 25	40C					
	Pace Analytic	al Services -	Kansas City					
Total Dissolved Solids	9200	mg/L	25	50 1		09/22/21 13:35		
4500H+ pH, Electrometric	Analytical Me	thod: SM 45	00-H+B					
	Pace Analytic	al Services -	Kansas City					
pH at 25 Degrees C	7.5	Std. Units	s 0.4	0 1		09/20/21 13:58		H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
	Pace Analytic	al Services -	Kansas City					
Chloride	4430	mg/L	100	00 1000		09/24/21 15:18	16887-00-6	
Fluoride	0.28	mg/L	0.2	20 1		09/23/21 18:25	16984-48-8	
Sulfate	254	mg/L	20	.0 20		09/23/21 18:44	14808-79-8	



Project:	LEC 847 Landfill	CCR										
Pace Project No.:	60380635											
QC Batch:	745516		Anal	ysis Metho	d: E	EPA 200.7						
QC Batch Method:	EPA 200.7		Anal	ysis Descri	ption: 2	200.7 Metals, Total						
			Labo	Laboratory: Pace Analytical Services - Kansas City								
Associated Lab Sa	mples: 6038063	5001, 6038063500	02, 6038063	35003, 603	80635004,	603806350	05, 60380	635006				
METHOD BLANK:	2986173			Matrix: W	/ater							
Associated Lab Sa	mples: 6038063	5001, 6038063500	02, 6038063	35003, 603	80635004,	603806350	05, 60380	635006				
			Bla	nk	Reporting							
Para	meter	Units	Res	ult	Limit	Analy	/zed	Qualifier	s			
Boron		mg/L		<0.10	0.10	0 09/27/2	1 18:40					
Calcium		mg/L		0.29	0.20	0 09/28/2	1 11:53	P8				
LABORATORY CO	NTROL SAMPLE:	2986174										
			Spike	LC	S	LCS	% F	Rec				
Para	meter	Units	Conc.	Res	sult	% Rec	Lim	nits (	Qualifiers	_		
Boron		mg/L		1	0.95	9	5	85-115				
Calcium		mg/L	1	10	10.2	102	2	85-115				
MATRIX SPIKE & I	MATRIX SPIKE DU	PLICATE: 2986	175		2986176							
			MS	MSD								
		60380630002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er Unit	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	mg/	L 2.3	1	1	3.4	3.3	108	97	70-130	3	20	
Calcium	mg/	L 542	10	10	572	556	292	2 135	70-130	3	20	M1
MATRIX SPIKE SA	MPLE:	2986177										
			60380	630002	Spike	MS		MS	% Rec	;		
Para	meter	Units	Re	esult	Conc.	Result	C	% Rec	Limits		Quali	fiers
Boron		mg/L		2.3	1		12.3	999	70	-130 M	1	
Calcium		ma/L		542	10		664	1210	70	-130 M	1	

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**



Project: I	EC 847 Landfill	CCR						
Pace Project No.: 6	60380635							
QC Batch:	744750		Analysis M	ethod:	SM 2540C			
QC Batch Method:	SM 2540C		Analysis D	escription:	2540C Total D	ssolved Solids		
			Laboratory	:	Pace Analytica	l Services - Ka	nsas City	
Associated Lab Samp	oles: 6038063	5001, 6038063500	02, 60380635003,	, 60380635004	1, 60380635005,	60380635006		
METHOD BLANK: 2	2983405		Matri	x: Water				
Associated Lab Samp	oles: 6038063	5001, 6038063500	02, 60380635003,	, 60380635004	4, 60380635005	60380635006		
			Blank	Reporting	I			
Parame	eter	Units	Result	Limit	Analyze	ed Qual	ifiers	
Total Dissolved Solids	3	mg/L		0	5.0 09/22/21 1	3:31		
LABORATORY CONT	ROL SAMPLE:	2983406						
			Spike	LCS	LCS	% Rec		
Parame	eter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Total Dissolved Solids	3	mg/L	1000	985	98	80-120		
SAMPLE DUPLICATE	E: 2983407							
_			60380532002	Dup		Max		
Parame	eter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids	3	mg/L	1200	0 12	230	2	10	
SAMPLE DUPLICATE	: 2983408							
_			60380635001	Dup		Max		
Parame	eter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids	6	mg/L	9270	0 91	00	2	10	

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



Project:	LEC 847 Landfill CCR									
Pace Project No.:	60380635									
QC Batch:	744326		Analysis Meth	od:	SM 4500-H+B					
QC Batch Method:	Analysis Desc	ription:	4500H+B pH							
Laboratory: Pace Analytical Services - Kansas City										
Associated Lab San	nples: 603806350	01, 60380635002	, 60380635003, 60	380635004,	60380635005,	60380635006				
SAMPLE DUPLICA	TE: 2982165									
			60380628001	Dup		Max				
Paran	Result	Result	RPD	RPD	Qualifiers					
pH at 25 Degrees C Std. Units		7.4	7.	.3	1	5 H6				

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



Project: LE	C 847 Landfill C	CR							
Pace Project No.: 603	380635								
QC Batch: 7	44822		Analysis Me	ethod:	FF	PA 300.0			
QC Batch Method E	PA 300 0		Analysis De	escription.	30	0.0 IC Anions			
			Laboratory:		Pa	ace Analytical Se	ervices - Kar	nsas Citv	
Associated Lab Sample	s: 603806350	01, 60380635003	Laboratory.		10				
METHOD BLANK: 298	33702		Matrix	c: Water					
Associated Lab Sample	s: 603806350	01, 60380635003							
Paramete	r	Linite	Blank	Reportir	ng	Analyzed	Quali	fiore	
Chlorido	· ·	Onits			1.0				
Eluorido		mg/L	<1.0	)	1.0	09/22/21 08:2	6 6		
Sulfate		mg/L	<0.20	)	1.0	09/22/21 08:2	6		
Sullate		ling/∟	<1.0	)	1.0	09/22/21 00.2	0		
METHOD BLANK: 298	35972		Matrix	: Water					
Associated Lab Sample	s: 603806350	01,60380635003							
		,	Blank	Reportir	na				
Paramete	r	Units	Result	Limit	0	Analyzed	Quali	fiers	
Chloride		ma/l	<10	)	10	09/23/21 08:0	2		
Fluoride		mg/L	<0.20	, )	0.20	09/23/21 08:0	2		
Sulfate		ma/L	<1.0	)	1.0	09/23/21 08:0	2		
METHOD BLANK: 298	38412		Matrix	: Water					
Associated Lab Sample	s: 603806350	01, 60380635003							
			Blank	Reportir	ng				
Paramete	r	Units	Result	Limit		Analyzed	Quali	fiers	
Chloride		mg/L	<1.0	)	1.0	09/27/21 09:5	7		
Fluoride		mg/L	<0.20	)	0.20	09/27/21 09:5	7		
Sulfate		mg/L	<1.0	)	1.0	09/27/21 09:5	7		
	29042		Motrix	(; )Motor					
Acception of Lank. 290	00943		Iviatity	. Water					
Associated Lab Sample	5. 603806350	01,60380635003	Disal	Descrit					
Paramete	r	Units	Blank Result	Reportir	ıg	Analyzed	Quali	fiers	
Chlorido		mall	-1.0		1.0				
Eluorido		mg/L	<1.0	)	0.1	09/20/21 10.4	2		
Sulfate		mg/L	<0.20	)	1.0	09/28/21 10:4	3		
Gunate		iiig/L	<1.0	,	1.0	00/20/21 10.4	0		
LABORATORY CONTR	OL SAMPLE:	2983703							
			Spike	LCS		LCS	% Rec		
Paramete	r	Units	Conc.	Result		% Rec	Limits	Qualifiers	
Chloride		mg/L	5	5.4		108	90-110		
Fluoride		mg/L	2.5	2.7		107	90-110		
D. 4	avecanted (b)	and the line is a second second second	and and have the state of		<b></b>		In manage 14 - 14	the sight of the s	.14
Results	presented on this p	age are in the units indi	cated by the "Units	s" column exce	pt whe	ere an alternate unit	is presented to	the right of the resu	it.

## **REPORT OF LABORATORY ANALYSIS**



#### Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

LABORATORY CONTROL SAMPLE	: 2983703										
-		Spike	LC	S	LCS	% Re	ec	o			
Parameter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers	_		
Sulfate	mg/L		5	5.5	11(	) 9	90-110				
LABORATORY CONTROL SAMPLE	: 2985973										
		Spike	LC	S	LCS	% Re	ес				
Parameter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers			
Chloride	mg/L		5	4.8	96	5 9	90-110		_		
Fluoride	mg/L	2	.5	2.6	106	6 9	90-110				
Sulfate	mg/L		5	4.9	98	3 9	90-110				
LABORATORY CONTROL SAMPLE	: 2988413										
		Spike	LC	s	LCS	% Re	ec				
Parameter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers			
Chloride	mg/L		5	4.7	95	5 9	90-110		-		
Fluoride	mg/L	2	.5	2.6	103	3 9	90-110				
Sulfate	mg/L		5	4.8	97	7 9	90-110				
LABORATORY CONTROL SAMPLE	: 2988944										
		Spike	LC	S	LCS	% Re	ec				
Parameter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers	_		
Chloride	mg/L		5	4.9	98	3 9	90-110		_		
Fluoride	mg/L	2	.5	2.5	102	2 9	90-110				
Sulfate	mg/L		5	5.0	100	) 9	90-110				
MATRIX SPIKE & MATRIX SPIKE D	UPLICATE: 2983	3704		2983705	5						
		MS	MSD								
	60380628002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter Ur	nits Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride m	g/L 83.8	100	100	237	193	153	109	80-120	21	15	M1,R1
Fluoride m	g/L 0.38	2.5	2.5	2.9	2.9	99	101	80-120	1	15	
Sulfate m	g/L 488	500	500	985	1000	99	103	80-120	2	15	
MATRIX SPIKE SAMPLE:	2983706										
Parameter	Units	60380 Re	)631002 esult	Spike Conc.	MS Result	%	MS Rec	% Rec Limits	;	Quali	fiers
Chloride	ma/L		80.7	100		 183	102	80	-120		
Fluoride	mg/L		0.28	2.5		2.3	82	80	-120		
Sulfate	mg/L		430	250		686	102	80	-120		

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## **REPORT OF LABORATORY ANALYSIS**



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2988	049		2988050							
			MS	MSD								
		60380635001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4530	5000	5000	9270	9470	95	99	80-120	2	15	
Fluoride	mg/L	0.26	2500	2500	2460	2450	98	98	80-120	0	15	
Sulfate	mg/L	184	5000	5000	4940	4960	95	95	80-120	0	15	

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Proiect:	LEC 847 Landfill C	CCR										
Pace Project No.:	60380635											
OC Potobi	745151		Anal	voia Matha	d. E	DA 200 0						
QC Batch.	745151		Analy		u. E	PA 300.0						
QC Batch Method:	EPA 300.0		Analy	sis Descri	ption: 3	00.0 IC An	ions		0.1			
		004 000000500	Labo	oratory:	ŀ	ace Analy	lical Servic	es - Kansa	is City			
Associated Lab Sai	mples: 60380635	004, 6038063500	5, 6038063	35006								
METHOD BLANK:	2984845			Matrix: W	ater							
Associated Lab Sar	mples: 60380635	004, 6038063500	5, 6038063	35006								
			Blar	nk l	Reporting							
Parar	meter	Units	Res	ult	Limit	Anal	yzed	Qualifier	S			
Chloride		mg/L		<1.0	1.(	09/23/2	1 08:20					
Fluoride		mg/L		<0.20	0.20	09/23/2	1 08:20					
Sulfate		mg/L		<1.0	1.0	0 09/23/2	1 08:20					
METHOD BLANK:	2987551			Matrix: W	ater							
Associated Lab Sar	mples: 60380635	004, 6038063500	5, 6038063	35006								
_			Blar	nk l	Reporting							
Para	meter	Units	Res	ult	Limit	Anal	yzed	Qualifier	'S			
Chloride		mg/L		<1.0	1.(	09/24/2	1 08:25					
Fluoride		mg/L		<0.20	0.20	) 09/24/2	1 08:25					
Sulfate		mg/L		<1.0	1.0	) 09/24/2	1 08:25					
		2984846										
Endertwicht de		200-10-10	Spike	LC	S	LCS	% R	ec				
Parar	meter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers			
Chloride		mg/L		5	5.4	10	7	90-110		_		
Fluoride		mg/L	2	.5	2.7	10	7	90-110				
Sulfate		mg/L		5	5.5	10	9	90-110				
LABORATORY CO	NTROL SAMPLE:	2987552										
			Spike	LC	S	LCS	% R	ec				
Parar	meter	Units	Conc.	Res	sult	% Rec	Limi	its	Qualifiers	_		
Chloride		mg/L		5	4.7	9	4	90-110				
Sulfate		mg/L		5	4.9	9	7	90-110				
MATRIX SPIKE & M	MATRIX SPIKE DUF	PLICATE: 2984	847 MS	MSD	2984848							
		60380635004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride		5380	5000	5000	10300	10400	98	90	80-120	1	15	
Fluoride	ma/L	. 1.1	2.5	2.5	2.8	3.5	67	93	80-120	21	15	M1,R1
Sulfate	m <u>g</u> /L	561	250	250	900	859	136	119	80-120	5	15	M1
	•											

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

## **REPORT OF LABORATORY ANALYSIS**



Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

MATRIX SPIKE SAMPLE:	2984849						
		60380682005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	369	250	613	98	80-120	
Fluoride	mg/L	3.6	2.5	6.5	116	80-120	
Sulfate	mg/L	1330	1000	2270	94	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.



Project: Pace Project No.:	LEC 847 Landfill 60380635	CCR							
QC Batch: QC Batch Method:	746413 EPA 300.0		Analysis Analysis	Method: Description:	El 30	PA 300.0	S	and City	
Associated Lab Sar	mples: 6038063	5002	Laborato	ry:	Pa	ace Analytical	Services - Kar	isas City	
METHOD BLANK:	2989770		Mat	trix: Water					
Associated Lab Sar	mples: 6038063	5002							
Para	meter	Units	Blank Result	Reporti Limit	ng	Analyzed	d Qualif	iers	
Chloride		mg/L	<	1.0	1.0	09/30/21 10	):48		
Fluoride		mg/L	<0.	20	0.20	09/30/21 10	):48		
Sulfate		mg/L	<1	1.0	1.0	09/30/21 10	):48		
METHOD BLANK:	2993021		Mat	trix: Water					
Associated Lab Sar	mples: 6038063	5002							
			Blank	Reporti	ng				
Para	meter	Units	Result	Limit		Analyzed	d Qualif	iers	
Chloride		mg/L	<1	1.0	1.0	10/01/21 09	9:19		
Fluoride		mg/L	<0.	20	0.20	10/01/21 09	9:19		
Sulfate		mg/L	<1	1.0	1.0	10/01/21 09	9:19		
METHOD BLANK:	2993760		Mat	trix: Water					
Associated Lab Sar	mples: 6038063	5002							
Para	meter	Units	Blank Result	Reporti Limit	ng	Analyzed	d Qualif	iers	
Chloride		mg/L	<1	1.0	1.0	10/04/21 09	9:05		
Fluoride		mg/L	<0.	20	0.20	10/04/21 09	9:05		
Sulfate		mg/L	<1	1.0	1.0	10/04/21 09	9:05		
LABORATORY CO	NTROL SAMPLE:	2989771							
Para	meter	Units	Spike Conc.	LCS Result		LCS % Rec	% Rec Limits	Qualifiers	
Chloride		ma/l		5.2		103	90-110		
Fluoride		ma/L	2.5	2.6		102	90-110		
Sulfate		mg/L	5	5.3		106	90-110		
LABORATORY CO	NTROL SAMPLE:	2993022							
-		11.5	Spike	LCS		LCS	% Rec	0	
Para	meter	Units	Conc	Result		% Kec	Limits	Qualifiers	
Chloride		mg/L	5	5.1		102	90-110		
Fluoride		mg/L	2.5	2.7		108	90-110		
>		ma/l	5	53		106	90-110		

## **REPORT OF LABORATORY ANALYSIS**



#### Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

LABORATORY CONTROL SAMPLE:	2993761					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPI	KE DUPL	ICATE: 2989	772		2989773							
			MS	MSD								
		60381176001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	51.8	50	50	103	104	103	104	80-120	0	15	
Fluoride	mg/L	ND	25	25	25.7	26.0	103	104	80-120	1	15	
Sulfate	mg/L	195	50	50	251	251	113	113	80-120	0	15	E

SAMPLE DUPLICATE: 2989774						
		60381176001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Chloride	mg/L	51.8	51.2	1	15	
Fluoride	mg/L	ND	<2.0		15	
Sulfate	mg/L	195	194	0	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.



#### QUALIFIERS

#### Project: LEC 847 Landfill CCR

Pace Project No.: 60380635

#### 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.
- P8 Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.
- R1 RPD value was outside control limits.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LEC 847 Landfill CCR Pace Project No.: 60380635

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60380635001	MW-31R-091521	EPA 200.7	745516	EPA 200.7	745589
60380635002	MW-32-091521	EPA 200.7	745516	EPA 200.7	745589
60380635003	MW-33-091521	EPA 200.7	745516	EPA 200.7	745589
60380635004	MW-34-091521	EPA 200.7	745516	EPA 200.7	745589
60380635005	MW-35-091521	EPA 200.7	745516	EPA 200.7	745589
60380635006	LEC-847LF-DUP-091521	EPA 200.7	745516	EPA 200.7	745589
60380635001	MW-31R-091521	SM 2540C	744750		
60380635002	MW-32-091521	SM 2540C	744750		
60380635003	MW-33-091521	SM 2540C	744750		
60380635004	MW-34-091521	SM 2540C	744750		
60380635005	MW-35-091521	SM 2540C	744750		
60380635006	LEC-847LF-DUP-091521	SM 2540C	744750		
60380635001	MW-31R-091521	SM 4500-H+B	744326		
60380635002	MW-32-091521	SM 4500-H+B	744326		
60380635003	MW-33-091521	SM 4500-H+B	744326		
60380635004	MW-34-091521	SM 4500-H+B	744326		
60380635005	MW-35-091521	SM 4500-H+B	744326		
60380635006	LEC-847LF-DUP-091521	SM 4500-H+B	744326		
60380635001	MW-31R-091521	EPA 300.0	744822		
60380635002	MW-32-091521	EPA 300.0	746413		
60380635003	MW-33-091521	EPA 300.0	744822		
60380635004	MW-34-091521	EPA 300.0	745151		
60380635005	MW-35-091521	EPA 300.0	745151		
60380635006	LEC-847LF-DUP-091521	EPA 300.0	745151		

	2
/	Pace Analytical
1-	www.pacelabs.com
1	

Sample Condition Upon Receipt

#### Everaget Client Name: Courier: FedEx U UPS D Clay 🗆 PEX 🗆 ECI 🗆 Pace 🗆 Xroads Client Other Tracking #: Pace Shipping Label Used? Yes No 🗆 Custody Seal on Cooler/Box Present: Yes D No D Seals intact: Yes 🗆 No 🗆 Packing Material: Bubble Wrap 🗋 Bubble Bags 🗀 Foam 🗆 None Other. Thermometer Used: Type of Ice: Wet Blue None Cooler Temperature (°C): As-read 2.7 Corr. Factor Corrected Date and initials of person examining contents: 10.9-19-2 Temperature should be above freezing to 6°C Chain of Custody present: Ves INO IN/A Chain of Custody relinguished: Yes No N/A Samples arrived within holding time: Yes No N/A Short Hold Time analyses (<72hr): □Yes INO □N/A Rush Turn Around Time requested: Yes No UNA Sufficient volume: Yes No N/A Correct containers used: Yes No N/A Pace containers used: Yes No ON/A Containers intact: Yes No ON/A Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? Yes No ANA Filtered volume received for dissolved tests? Yes No KIA Sample labels match COC: Date / time / ID / analyses Yes No N/A Samples contain multiple phases? WT TYes INO DNA Matrix: Containers requiring pH preservation in compliance? ¥Yes □No □N/A List sample IDs, volumes, lot #'s of preservative and the (HNO₃, H₂SO₄, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) date/time added (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) IOT# Cyanide water sample checks: Nes EINO Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve) Yes No Trip Blank present: Yes No N/A Headspace in VOA vials ( >6mm): □Yes □No ₽N/A Samples from USDA Regulated Area: □Yes □No ZN/A State: Additional labels attached to 5035A / TX1005 vials in the field? See No SN/A Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N Person Contacted: Date/Time: Comments/ Resolution:

Project Manager Review:

Date:

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

WO#:60380635



...

# **CHAIN-OF-CUSTODY / Analytical Request Document**

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

Notice Information:         Required Project Information:         Involve Information:         Page: 1         of 1           Company:         EVERGY KANSAS CENTRAL, INC         Report To: Melissa Michels, Samantha Kaney, Daniella Ober Attention:         Accounts Payable         Accounter Payable <td< th=""><th>ATER</th></td<>	ATER
Section D       Valid Matrix Codes	ATER
Noncession       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       Andrew Hare, Tabitha Hylton, Samantha Kaney       Address:       SAME AS A       NPDES       © GROUND WATER       DRINKING WATER         Email To       melissa minchels@evergy.com       Purchase Order No::       Pace Aude       NPDES       © GROUND WATER       DRINKING WATER         Requested Due Date/TAT:       7 day       Project Name:       LEC 847 Landfill CCR       Pace Project       Hank Kapka, 913-563-1404       Site Location       KS         Section D       Martin:       Coope       Good       Good       Good       Good       KS       KS       KS       KS       KS         Section D       Martin:       Coope       Good       Good       Good       KS       Good       KS       <	ATER
B18 Kansas Ave, Topeka, KS 66612       Andrew Hare, Tabitha Hylton, Samantha Kaney       Address:       SAME AS A       Interview       Recursion	ATER
Email To:       melissa michels@evergy.com       Purchase Order No.:       Pace Audite Reference:       Pace Quote Reference:       Pace Quote Reference:       Purchase Order No.:       Pace Audite Reference:       Pace Quote Reference:       Purchase Order No.:       Purchase Order No.:       Pace Audite Reference:       Purchase Order No.:       Purchase Order No.:       Pace Audite Reference:       Purchase Order No.:       Purch	ATER
Phone:       785-575-8113       Fax.       Project Name:       LEC 847 Landfill CCR       Pace Project Name:       Ste Location STATE:       Ste Location STATE:       Ste Location STATE:       MS         Required Client Information       Valid Matrix Codes MATEW AT WATE WATE WOW PRODUCT P       Valid Matrix Codes WATE WATE WATE WATE WOW PRODUCT P       Valid Matrix Codes WATE WATE WATE WATE WATE WATE WATE WATE	
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1       MW-31R-091521       WT       G       -       09/15/21       13:45       -       4       3       1       .       X	
2 MW 22 001521	_ab I.D.
A IVIVY-32-03132 WT G A 1940 A 19 A	
3 MW-33-091521 WT G	
4 MW-34-091521 WT G 09/15/21 14:55 4 3 1 X X X X	
5 MW-35-091521 WT G A 09/15/21 11/25 4 2 4 3 1	
6 LEC-847LF-DUP-091521 WT G C C 09/15/21 12:50 4 2 4 5 1 X X X X	
7	
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ADDITIONAL COMMENTS RELINQUISHED BY / AFFILIATION DATE TIME ACCEPTED BY / AFFILIATION DATE TIME SAMPLE CONDITIONE	
200.7 Total Metals*: B, Ca	
Jasuir R. Franks / SCS 9/16/21 19.00 44 Cat 7-17-21 2.4	
D SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Jason R. Franks	g
SIGNATURE of SAMPLER: DATE Signed	s Intact N)
	mples Intact (Y/N)
**ATTACHMENT 2 Statistical Analyses**  ATTACHMENT 2-1 September 2020 Statistical Analysis



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

# TECHNICAL MEMORANDUM

October 7, 2022 File No. 129778-049

TO:	Evergy Kansas Central, Inc. Jared Morrison – Director, Water and Waste Programs
FROM:	Haley & Aldrich, Inc. Steven F. Putrich, P.E., Principal Consultant – Engineering Principal Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist
SUBJECT:	September 2020 Semi-Annual Groundwater Detection Monitoring Data Statistical Evaluation <b>Completed January 15, 2021</b> 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 2020** 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, 2020**, with laboratory results received and validated on **October 23, 2020**.

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 an 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 2020 (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 2020 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 an SSI. Based on previous compliance sampling events, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for MW-34 for boron and fluoride 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 2020, no SSIs above background PLs occurred at the LEC 847 Landfill.

Tables:

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



TABLE

# TABLE ISUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATIONSEPTEMBER 2020 SAMPLING EVENTLAWRENCE ENERGY CENTER - 847 LANDFILLLAWRENCE, KANSAS

													Inter-well	Analysis
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	Outlier Presence	Outlier Removed	Trend	Distribution Well	September 2020 Concentration (mg/L)	Background Limits <sup>1</sup> (UPL) mg/L	SSI
							C	CR Appendi	x-III: Boron,	Total (mg/L)				
MW-32	14/14	0%	-	0.19	0.00003515	0.005929	0.03277	No	No	Stable			2.050	
MW-35	14/14	0%	-	2.05	0.02246	0.1499	0.08167	No	No	Stable			2.050	
MW-31R	14/14	0%	-	0.75	0.005623	0.07499	0.1173	No	No	Decreasing	Normal	0.75		N
MW-33	14/14	0%	-	1.7	0.009849	0.09924	0.06134	No	No	Stable	Non-parametric	1.6		N
MW-34	14/14	0%	-	2.2	0.01925	0.1388	0.06906	No	No	Increasing	Normal	2.2		
							CC	CR Appendix	-III: Calcium,	Total (mg/L)				
MW-32	14/14	0%	-	61.9	2.968	1.723	0.02917	No	No	Stable			545	
MW-35	14/14	0%	-	545	1403	37.46	0.07333	Yes	No	Stable			545	
MW-31R	14/14	0%	-	264	393	19.82	0.08786	No	No	Stable	Normal	253		N
MW-33	14/14	0%	-	265	110.2	10.5	0.04202	No	No	Stable	Normal	246		N
MW-34	14/14	0%	-	243	205.9	14.35	0.06544	No	No	Decreasing	Normal	203		N
		•					-	CCR Appen	dix-III: Chlori	ide (mg/L)				
MW-32	14/14	0%	-	113	39.07	6.251	0.06358	No	No	Stable			16700	
MW-35	14/14	0%	-	16700	1632000	1277	0.08902	No	No	Stable			10,00	
MW-31R	13/14	7%	1-1	5210	1428000	1195	0.3095	Yes	No	Stable	Normal	4840		N
MW-33	14/14	0%	-	8700	353200	594.3	0.08011	Yes	No	Decreasing	Normal	6960		N
MW-34	14/14	0%	-	6960	156600	395.8	0.06365	No	No	Stable	Normal	6340		N
		1	1	0	1		•	CCR Appen	dix-III: Fluori	ide (mg/L)	1	1		-
MW-32	11/14	21%	0.2-0.2	0.38	0.00256	0.0506	0.2047	Yes	No	Increasing			1.700	
MW-35	2/14	86%	0.1-10	1.6	6.881	2.623	2.481	Yes	No	Stable				
MW-31R	9/14	36%	0.2-0.2	0.73	0.03881	0.197	0.4813	No	No	Stable	Normal	< 0.20		N
MW-33	7/14	50%	0.2-0.2	1.5	0.3184	0.5643	0.7845	No	No	Stable	Non-parametric	< 0.20		N
MW-34	11/14	21%	0.2-0.2	1.9	0.4332	0.6582	0.5632	No	No	Stable	Normal	< 0.20		
		CCR Appendix-III: pH (lab) (SU)												
MW-32	14/14	0%	-	7.9	0.02066	0.1437	0.01898	Yes	No	Stable			8.22	
MW-35	14/14	0%	-	7.4	0.01077	0.1038	0.01441	No	No	Stable				
MW-31R	14/14	0%	-	7.5	0.01104	0.1051	0.01435	Yes	No	Stable	Normal	7.2		N
IVIW-33	14/14	0%	-	7.8	0.01495	0.1222	0.01639	Yes	NO	Stable	Non-parametric	7.4		N
10100-34	14/14	0%	-	7.9	0.02335	0.1528	0.02005				Normai	7.6		N
104/22		00/	1		0.0014	0.0057	0.4.4.7	CCR Apper			1			1
MW-32	14/14	0%	-	9.1	0.9914	0.9957	0.1417	NO	No	Decreasing			666	
IVIW-35	14/14	0%	-	666	/07.8	26.6	0.04266	NO	NO	Stable	Newsel	107		N
IVIVV-31R	14/14	0%	-	187	072	25.92	0.1708	NO Vac	NO	Stable	Normal	187		IN N
IVIVV-33	14/14	0%	-	462	2558	50.58	0.1587	Yes	NO	Stable	Normal	2//		N
10100-34	14/14	0%	-	535	1025	40.31	0.0800					449		N
N414/ 22	10/10	00/	1	E 25	222.0	10					5/ -/			
IVIVV-32	14/14	0%	-	525	323.9	18	0.03634	INO Voc	NO No	stable			27100	
NUV-33	1//1/	0%	-	2/100	41440000	0437	0.2749	No	No	Stable	Normal	8420		NI
N/// 22	1/1/1/	0%	-	0420	1395000	1101	0.00275	No	No	Stable	Normal	042U 12000		IN NI
NAVA/ 24	14/14	0%	-	12200	1333000	1101	0.03575	Voc	No	Stable	Non parametric	11400		N N
10100-34	14/14	0%	-	12300	2222000	2324	0.2185	res	INO	Stable	Non-parametric	11400		IN

Notes and Abbreviations:

<sup>1</sup> Interwell background data collected from 08/16/2016 through 09/15/2020, unless otherwise noted.

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

CCR = coal combustion residual

mg/L = milligrams per Liter

SSI = statistically significant increase

SU = standard unit UPL = upper prediction limit

HALEY ALDRICH

	Intra-well Analysis							
	Background Limit <sup>2</sup> (UPL) mg/L	SSI						
	2.508	N						
		ļ						
		[						
	2 5 2 0							
	3.539	N						
_								

ATTACHMENT 2-2 March 2021 Statistical Analysis



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

# TECHNICAL MEMORANDUM

October 7, 2022 File No. 129778-049

TO:	Evergy Kansas Central, Inc. Jared Morrison – Director, Water and Waste Programs
FROM:	Haley & Aldrich, Inc. Steven F. Putrich, P.E., Principal Consultant – Engineering Principal Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist
SUBJECT:	March 2021 Semi-Annual Groundwater Detection Monitoring Data Statistical Evaluation <b>Completed July 15, 2021</b> 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 **March 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 **March 9 and 10, 2021**, with laboratory results received and validated on **April 16, 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 2020 (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 March 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 an SSI. Based on previous compliance sampling events, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for MW-34 for boron and fluoride 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 March 2021, no SSIs above background PLs occurred at the LEC 847 Landfill.

Tables:

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



TABLE

# TABLE ISUMMARY OF SEMI-ANNUAL DETECTION GROUNDWATER MONITORING STATISTICAL EVALUATIONMARCH 2021 SAMPLING EVENTLAWRENCE ENERGY CENTER - 847 LANDFILLLAWRENCE, KANSAS

Image       Image <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Inter-well</th><th>Analysis</th></t<>														Inter-well	Analysis
<table-container>        Image       <t< th=""><th>Location Id</th><th>Frequency of Detection</th><th>Percent Non-Detects</th><th>Range of Non-Detect</th><th>Maximum Detect</th><th>Variance</th><th>Standard Deviation</th><th>Coefficient of Variance</th><th>Outlier Presence</th><th>Outlier Removed</th><th>Trend</th><th>Distribution Well</th><th>March 2021 Concentration (mg/L)</th><th>Background Limits<sup>1</sup> (UPL) mg/L</th><th>SSI</th></t<></table-container>	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 2021 Concentration (mg/L)	Background Limits <sup>1</sup> (UPL) mg/L	SSI
<table-container>    Image   Image &lt;</table-container>				CCR Appendix	-III: Boron, Tot	tal (mg/L)									
MM3215/150/%0.72.050.14470.0789VNoStableVNo0.70.0000.000NMM3331/50.0%0.70.01080.01080.05740.0592NoNoStableNo0.50.5No<	MW-32	15/15	0%	-	0.19	0.0000327	0.005718	0.03161	No	No	Stable			2 050	
<table-container>    MM33   15/15   0.7%   0.7%   0.03   0.037   0.037   0.08   No   Degram   Normal   Normal   0.353   0.037   0.0917   0.0371   0.0383   No   Sub   Normal   Normal   0.353   0.353   Normal   Normal   0.353   Normal   Normal   0.353   Normal   <t< td=""><td>MW-35</td><td>15/15</td><td>0%</td><td>-</td><td>2.05</td><td>0.02094</td><td>0.1447</td><td>0.07895</td><td>Yes</td><td>No</td><td>Stable</td><td></td><td></td><td>2.050</td><td></td></t<></table-container>	MW-35	15/15	0%	-	2.05	0.02094	0.1447	0.07895	Yes	No	Stable			2.050	
<table-container>    MM34   Infinity   Orm   I.1   Output P   Output P   No   No   State   No   Res   State   Res   Res<!--</td--><td>MW-31R</td><td>15/15</td><td>0%</td><td>-</td><td>0.75</td><td>0.01081</td><td>0.104</td><td>0.1676</td><td>No</td><td>No</td><td>Decreasing</td><td>Normal</td><td>0.35</td><td></td><td>N</td></table-container>	MW-31R	15/15	0%	-	0.75	0.01081	0.104	0.1676	No	No	Decreasing	Normal	0.35		N
<table-container>MMAInfoInfoInfoInfoNo<td>MW-33</td><td>15/15</td><td>0%</td><td>-</td><td>1.7</td><td>0.009167</td><td>0.09574</td><td>0.05922</td><td>No</td><td>No</td><td>Stable</td><td>Non-parametric</td><td>1.6</td><td></td><td>N</td></table-container>	MW-33	15/15	0%	-	1.7	0.009167	0.09574	0.05922	No	No	Stable	Non-parametric	1.6		N
<table-container>        Image       <t< td=""><td>MW-34</td><td>15/15</td><td>0%</td><td>-</td><td>2.2</td><td>0.01788</td><td>0.1337</td><td>0.06658</td><td>No</td><td>No</td><td>Increasing</td><td>Normal</td><td>2.0</td><td></td><td></td></t<></table-container>	MW-34	15/15	0%	-	2.2	0.01788	0.1337	0.06658	No	No	Increasing	Normal	2.0		
MM3215/150%0%0%1%0.0238NoNoStable115454545454570.0238NoNoStableNormal010254111MW3315/150%0%1.02.044.042.090.0338NoNoStableNormal1921.01.0NoNormal1921.0Normal1921.0Normal1921.0Normal1921.0Normal1921.01.0Normal1921.01.0Normal1.01.0Normal1.01.0Normal1.01.0Normal1.01.0Normal1.0 <td></td> <td></td> <td></td> <td>CCR Appendix-</td> <td>III: Calcium, To</td> <td>otal (mg/L)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				CCR Appendix-	III: Calcium, To	otal (mg/L)									
MM-3615/50%0%0%1%0%1%0%1%0%1%0%1%0%1%0%1%0%1%0%1%0%1%0%1%1%0%1%	MW-32	15/15	0%	-	61.9	2.921	1.709	0.02898	No	No	Stable			545	
<table-container>MM3815%0%1.02.644.042.090.0394NoNoNoSubNormal2.00NoNoMW3315%0%0.72.780.780.700.700.70SubNormal2.20NoNoNoMW3415%0%0.70.780.70<td>MW-35</td><td>15/15</td><td>0%</td><td>-</td><td>545</td><td>1375</td><td>37.07</td><td>0.0729</td><td>Yes</td><td>No</td><td>Stable</td><td></td><td></td><td>545</td><td></td></table-container>	MW-35	15/15	0%	-	545	1375	37.07	0.0729	Yes	No	Stable			545	
<table-container>MM3315/50%0%-26516.1512.7110.78NoNoStableNormal22.00Normal22.00NormalNormal22.00NormalNormal12.00Normal12.00NormalNormal12.00NormalNormalNormal12.00Normal&lt;</table-container>	MW-31R	15/15	0%	-	264	440.4	20.99	0.09394	No	No	Stable	Normal	192		N
<table-container>    MM-34   15/15   0,%   0,%   No   No   Normal   Decreasing   Normal   138   Normal   138   Normal   138   Normal   Normal<td>MW-33</td><td>15/15</td><td>0%</td><td>-</td><td>265</td><td>161.5</td><td>12.71</td><td>0.05128</td><td>No</td><td>No</td><td>Stable</td><td>Normal</td><td>220</td><td></td><td>N</td></table-container>	MW-33	15/15	0%	-	265	161.5	12.71	0.05128	No	No	Stable	Normal	220		N
Image: http://product image	MW-34	15/15	0%	-	243	269.6	16.42	0.07566	No	No	Decreasing	Normal	185		N
<table-container>MM·3215/150%113038.446.20.0822NoNoIncreasingIn</table-container>				CCR Append	ix-III: Chloride	e (mg/L)									
MM·3814/150%1%1%0001%0001%0000%088NoNoIncreasingI	MW-32	15/15	0%	-	113	38.44	6.2	0.06282	No	No	Increasing			16700	
<table-container>MM-3314/1917/1913/1013320011540.300419/8ModSableNormal19/7016/70AMW-3415/150%0%100.303015/150.003500NormalStableNormal6690ANormal6900NormalNormal6900NormalNormalNormalNormalNormal<th< td=""><td>MW-35</td><td>15/15</td><td>0%</td><td>-</td><td>16700</td><td>1769000</td><td>1330</td><td>0.09185</td><td>No</td><td>No</td><td>Increasing</td><td></td><td></td><td>10700</td><td></td></th<></table-container>	MW-35	15/15	0%	-	16700	1769000	1330	0.09185	No	No	Increasing			10700	
<table-container>    Mersion   Mark   Mark</table-container>	MW-31R	14/15	7%	1-1	5210	1332000	1154	0.3004	Yes	No	Stable	Normal	3570		N
<table-container>    Me340   Me340</table-container>	MW-33	15/15	0%	-	8700	345800	588.1	0.07965	Yes	No	Stable	Normal	6900		N
<table-container>Image: http://product image: http://product image</table-container>	MW-34	15/15	0%	-	6960	159700	399.6	0.06395	No	No	Stable	Normal	6680		N
<table-container>    MM-32   1/15   20%   0.2.02   0.38   0.0025   0.53   2.537   No   No   Increasing   <th< td=""><td></td><td></td><td></td><td>CCR Append</td><td>lix-III: Fluoride</td><td>(mg/L)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<></table-container>				CCR Append	lix-III: Fluoride	(mg/L)									
MM-35Z1/587%0.1.101.66.4.392.5.372.5.37M.NNNStabeStabeMemMem0.20MemNMM-318/154/3%0.2.020.30.03690.4.920.7867NoNoStabeNonparatic0.0.9NoNoMW-338/154/3%0.2.021.90.04020.53950.5495NoNoStabeNonparaticNonparaticNo </td <td>MW-32</td> <td>12/15</td> <td>20%</td> <td>0.2-0.2</td> <td>0.38</td> <td>0.0025</td> <td>0.05</td> <td>0.2</td> <td>No</td> <td>No</td> <td>Increasing</td> <td></td> <td></td> <td>1 700</td> <td></td>	MW-32	12/15	20%	0.2-0.2	0.38	0.0025	0.05	0.2	No	No	Increasing			1 700	
MM-3R10/1533%0.2.420.7.30.036980.01210.4792NoNoStableNormal0.0.20.0.2NNMW-3312/1547%0.2.2.21.50.30210.63690.7870NoNoStableNon-paranti0.0.20.1.0IIMW-3412/1527%0.2.20.3200.63690.7870NoNoStableNon-paranti0.1.00IIIMW-3212/150.7%0.7%0.02470.5580.9%30.7%NoStableNon-paranti0.1.0IIIIMW-3215/150.%0.%1.7%0.02470.1520.01500.7%NoStableNormal0.7.00.1.0NoNoMW-3315/150.%0.47.40.02470.11520.01500.7%NoStableNormal0.7.00.7.0NoNoMW-3315/150.%0.47.40.01270.11520.01500.76NoStableNormal0.7.00.7.0NoNoMW-3315/150.%0.%0.0120.10320.10320.10320.02410.78NoStableNormal0.7.00.7.0NoNoMW-3315/150.%0.%0.0120.10320.10320.10320.10320.1032NoNoNoNoNoNoNoNoNoNo <td>MW-35</td> <td>2/15</td> <td>87%</td> <td>0.1-10</td> <td>1.6</td> <td>6.439</td> <td>2.537</td> <td>2.537</td> <td>No</td> <td>No</td> <td>Stable</td> <td></td> <td></td> <td>1.700</td> <td></td>	MW-35	2/15	87%	0.1-10	1.6	6.439	2.537	2.537	No	No	Stable			1.700	
<table-container>MW-338/1547%0.2-0.21.50.30210.54960.7867NoNoStableNon-parametric0.411MNoNoMW-3421/1520%0.2-0.21.50.40420.63570.5498NoNoStableNormal0.161MMMW-3215/150%1.77.90.02410.15520.0255YesNoStableNormalAllos</table-container>	MW-31R	10/15	33%	0.2-0.2	0.73	0.03698	0.1923	0.4792	No	No	Stable	Normal	0.29		N
<table-container>MM3412/190.02.01.0.90.4.040.6.370.4.9.4No.No.StateNormalNo.1.0.0No.</table-container>	MW-33	8/15	47%	0.2-0.2	1.5	0.3021	0.5496	0.7867	No	No	Stable	Non-parametric	0.41		N
Image: Constraint of the system of the sys	MW-34	12/15	20%	0.2-0.2	1.9	0.4042	0.6357	0.5493	No	No	Stable	Normal	1.00		
MM·32     If./i     O/M     7.9     O.024     O.1552     O.0205     Yes     No     Stale     Interplay     Action of the state				CCR Appen	dix-III: pH (lab	o) (SU)									
MW-3515/150%0%7.40.01260.11250.01366YesNoStableNoStableNo7.1010.0120NoNoMW-31815/150%0.70.750.01320.11300.0150YesNoStableNormal7.107.10NoNoNoMW-3315/150%0.70.780.01320.11630.0224YesNoStableNormal7.107.10NoNoNoMW-3415/150%0.70.780.03230.1630.0224YesNoStableNormal7.107.10NoNoNoNormal7.10NoNoNoNormalNormal7.10NoNoNormalNormal7.10Normal	MW-32	15/15	0%	-	7.9	0.0241	0.1552	0.02055	Yes	No	Stable			6 55 8 22	
MW-31R15/150,0%0,0%7.50,01320,11630,0152YesNoStabeNormal7.1International StabeNormal7.1International StabeNormalNormalNormalNormalNormal	MW-35	15/15	0%	-	7.4	0.01267	0.1125	0.01566	Yes	No	Stable			0.55, 8.22	
MW-3315/150.0%0.0%1.7.80.02810.16880.02245YesNoStabeNormal7.01.0.0NoMW-3415/150.0%0.0%0.13320.1830.0241NoNoNoStabeNormal7.01.0.0NoNoMW-3215/150.0%0.0%0.13320.13130.02410.042NoNoStabeNormal7.01.0.0NoNoNormal <td>MW-31R</td> <td>15/15</td> <td>0%</td> <td>-</td> <td>7.5</td> <td>0.01352</td> <td>0.1163</td> <td>0.01592</td> <td>Yes</td> <td>No</td> <td>Stable</td> <td>Normal</td> <td>7.1</td> <td></td> <td>N</td>	MW-31R	15/15	0%	-	7.5	0.01352	0.1163	0.01592	Yes	No	Stable	Normal	7.1		N
MW-34     15/15     0%     0%     1%	MW-33	15/15	0%	-	7.8	0.02781	0.1668	0.02245	Yes	No	Stable	Normal	7.0		N
Image: CCR Appendix USE Substraint Sub	MW-34	15/15	0%	-	7.9	0.03352	0.1831	0.02411	No	No	Increasing	Normal	7.2		N
MW-3215/150%0%0%0.9110.99560.143NoNoDecreasingIdentifyMethod $A = A = A + A + A + A + A + A + A + A + $				CCR Append	dix-III: Sulfate	(mg/L)									
MW-3515/150%-666696.826.40.04222NoNoStableMedMed $1000$ $100$	MW-32	15/15	0%	-	9.1	0.9911	0.9956	0.143	No	No	Decreasing			666	
MW-31R15/150%-187683.2261.40.1745NoNoStabeNormal122162NMW-3315/150%0%0.42451245149.510.1564178NoStabeNormal122126NMW-3415/150%0.7%0.7%0.15640.8%0.8%NoStabeNormal2851690.8%MW-3415/150%0.7%535159739.690.08632NoNoStabeNormal2002420160NMW-3215/150%0.7%530159739.690.08925NoNoNoStabeNormal24202420 $31.44$ 19.530.03925NoNoStabeNormal21.0024.0027.00 $27.00$ <t< td=""><td>MW-35</td><td>15/15</td><td>0%</td><td>-</td><td>666</td><td>696.8</td><td>26.4</td><td>0.04222</td><td>No</td><td>No</td><td>Stable</td><td></td><td></td><td>000</td><td></td></t<>	MW-35	15/15	0%	-	666	696.8	26.4	0.04222	No	No	Stable			000	
MW-3315/150%-462245149.510.1564YesNoStabeNormal285285NoMW-3415/150%0.0%535159739.960.08632NoNoStabeNormal2854429NoNoMW-32CK-K-K-K-K-K-K-K-K-K-K-K-K-K-K-K-K-K-K-	MW-31R	15/15	0%	-	187	683.2	26.14	0.1745	No	No	Stable	Normal	122		N
MW-3415/150% $-$ 535159739.960.08632NoNoStabeNormal429 $-$ NoMW-34 $   -$	MW-33	15/15	0%	-	462	2451	49.51	0.1564	Yes	No	Stable	Normal	285		N
Image: CCR Appendix III: Total Ussolved SUBS (TDS) (mg/L)Image: CCR Appendix III: Total Ussolved SUBS (TDS	MW-34	15/15	0%	-	535	1597	39.96	0.08632	No	No	Stable	Normal	429		N
MW-3215/150%-53038.419.530.03925NoNoIncreasingInc			CCF	R Appendix-III: Tota	al Dissolved So	olids (TDS) (mg/	′L)								
MW-35       15/15       0%       -       28600       4027000       6346       0.267       Yes       No       Stable       Image: Constraint of the stable       Constable	MW-32	15/15	0%	-	530	381.4	19.53	0.03925	No	No	Increasing			27100	
MW-31R       15/15       0%       -       8420       71200       843.8       0.1152       No       No       Stable       Normal       7720       N         MW-33       15/15       0%       -       14100       1328000       1153       0.09114       Yes       No       Stable       Normal       7720       N       N         MW-34       15/15       0%       -       13000       538600       2321       0.215       Yes       No       Stable       Non-parametric       13000       M       N	MW-35	15/15	0%	-	28600	40270000	6346	0.2671	Yes	No	Stable			27100	
MW-33       15/15       0%       -       14100       1328000       1153       0.09114       Yes       No       Stable       Normal       13300       N         MW-34       15/15       0%       -       13000       5386000       2321       0.215       Yes       No       Stable       Non-parametric       13000       M       M	MW-31R	15/15	0%	-	8420	712000	843.8	0.1152	No	No	Stable	Normal	7720		Ν
MW-34 15/15 0% - 13000 5386000 2321 0.215 Yes No Stable Non-parametric 13000 N	MW-33	15/15	0%	-	14100	1328000	1153	0.09114	Yes	No	Stable	Normal	13300		N
	MW-34	15/15	0%	-	13000	5386000	2321	0.215	Yes	No	Stable	Non-parametric	13000		Ν

Notes and Abbreviations:

<sup>1</sup> Interwell background data collected from 08/16/2016 through 09/15/2020.

<sup>2</sup> 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



Intra-well Analysis								
Background Limit <sup>2</sup> (UPL) mg/L	SSI							
 2.508	N							
3.539	N							

ATTACHMENT 3 Groundwater Potentiometric Maps





### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 10 MARCH 2021.

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 10 MARCH 2021 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



500 250 SCALE IN FEET

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

847 LANDFILL **GROUNDWATER POTENTIOMETRIC** ELEVATION CONTOUR MAP MARCH 10, 2021

Severgy OCTOBER 2022

FIGURE 2





### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 15 SEPTEMBER 2021.

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 SEPTEMBER 2021 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, 04 MARCH 2020



500 250 SCALE IN FEET



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

847 LANDFILL **GROUNDWATER POTENTIOMETRIC** ELEVATION CONTOUR MAP SEPTEMBER 15, 2021

Severgy OCTOBER 2022

FIGURE 3